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1987 Census of Manufactures

NEW YORK
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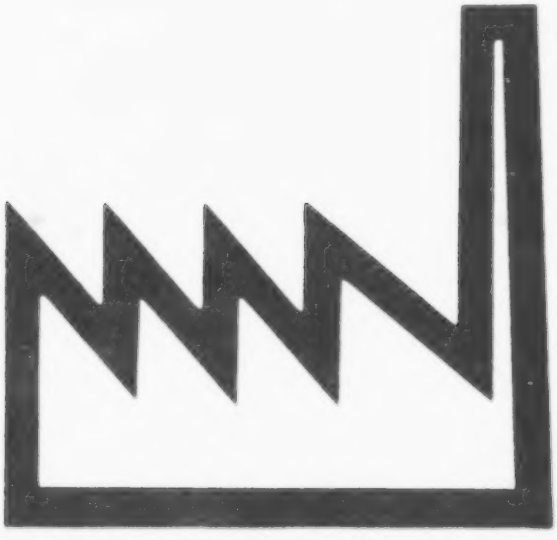
MC87-I-21A

INDUSTRY SERIES

Tobacco Products

Industries 2111, 2121, 2131, and 2141



U.S. Department of Commerce
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The overall planning and review of the census operations were performed by the staff of the Office of the Assistant Director for Economic and Agriculture Censuses.

This report was prepared in the Industry Division. **John Govoni,** Assistant Chief for Census/ASM Programs, was responsible for the overall planning, management, and coordination of the census of manufactures. Planning and implementation were under the direction of **Michael Zampogna,** Chief, Census/ASM Nondurables Branch, assisted by **Ted McGrath,** Section Chief, with primary data analysis responsibilities performed by **Evelyn Jordan.**

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If you have any questions concerning the statistics in this report, call (301) 763-2510.

1987
Census of Manufactures

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Tobacco Products

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Issued January 1990

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INTRODUCTION

PURPOSE AND USES OF THE ECONOMIC CENSUSES

The economic censuses are the major source of facts about the structure and functioning of the Nation's economy. They provide essential information for government, business, industry, and the general public.

Economic censuses furnish an important part of the framework for such composite measures as the gross national product, input-output measures, production and price indexes, and other statistical series that measure short-term changes in economic conditions.

Policy-making agencies of the Federal Government use the data, especially in monitoring economic activity and providing assistance to business.

State and local governments use the data to assess business activities and tax bases within their jurisdictions and to develop programs to attract business.

Trade associations study trends in their own and competing industries, and keep their members informed of market changes.

Individual businesses use the data to locate potential markets and to analyze their own production and sales performance relative to industry or area averages.

AUTHORITY AND SCOPE

Title 13 of the United States Code (sections 131, 191, and 224) directs the Census Bureau to take the economic censuses every 5 years, covering years ending in 2 and 7. The 1987 Economic Censuses consist of the

Census of Retail Trade
Census of Wholesale Trade
Census of Service Industries
Census of Transportation
Census of Manufactures
Census of Mineral Industries
Census of Construction Industries

Special programs also cover enterprise statistics and minority-owned and women-owned businesses. (The 1987 Census of Agriculture and 1987 Census of Governments are conducted separately.) The next economic censuses are scheduled to be taken in 1993 covering the year 1992.

AVAILABILITY OF THE DATA

The results of each of the economic censuses are available in printed reports, for sale by the U.S. Government Printing Office, and on microfiche, computer tape, compact discs with read-only memory, and flexible diskettes, for sale by the Census Bureau. Order forms for all types of products are available on request from Customer Services, Census Bureau, Washington, DC 20233. A more complete description of publications being issued from this census is on the inside back cover of this document.

Census facts are also widely disseminated by trade associations, business journals, and newspapers. Volumes containing census statistics are available in most major public and college libraries. Finally, State Data Centers in every State and Business and Industry Data Centers in many States also supply economic census statistics.

WHAT'S NEW IN 1987

Several changes have taken place for the 1987 censuses. Data will be reported on the basis of the newly revised Standard Industrial Classification (SIC) system with selected reports including "bridge tables," linking the old and new classification systems. A new set of metropolitan areas has been adopted, and more detailed information will be available for businesses with no paid employees. For additional information on these changes, review the subsequent text.

HISTORICAL INFORMATION

The economic censuses have been taken together as an integrated program at 5-year intervals since 1967, and before that for 1963, 1958, and 1954. Prior to that time, the individual censuses were taken separately at varying intervals.

The economic censuses trace their beginnings to the 1810 Decennial Census, when questions on manufacturing were included with those for population. Coverage of economic activities was expanded for 1840 and subsequent censuses to include mining and some commercial

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activities. In 1902, Congress established a permanent Census Bureau and directed that a census of manufactures be taken every 5 years. The 1905 manufactures census was the first time a census was taken apart from the regular every-10-year population census.

The first census of business was taken in 1930, covering 1929. Initially it covered retail and wholesale trade, and construction industries, but it was broadened in 1933 to include some of the service trades.

The 1954 economic censuses were the first to be fully integrated—providing comparable census data across economic sectors, using consistent time periods, concepts, definitions, classifications, and reporting units. These were the first censuses to be taken by mail, using lists of firms provided by the administrative records of other federal agencies. Since 1963, administrative records have also been used to provide basic statistics as well for very small firms, reducing or eliminating the need to send them census questionnaires. The Enterprise Statistics Program, which publishes combined data from the economic censuses, was made possible with the implementation of the integrated census program in 1954.

The range of industries covered in the economic censuses has continued to expand. The Census of Construction Industries began on a regular basis in 1967, and the scope of service industries was broadened in 1967, 1977, and 1987. The Census of Transportation began in 1963 as a set of surveys covering travel, transportation of commodities, and trucks. New for 1987 are publications reporting on business establishments engaged in several transportation industries, paralleling the data on establishments in other sectors. This is part of a gradual expansion in coverage of industries previously subjected to government regulation. The Survey of Minority-Owned Business Enterprises was first conducted as a special project in 1969 and was incorporated into the economic censuses in 1972 along with the Survey of Women-Owned Businesses.

Economic censuses have also been taken in Puerto Rico since 1909, in the Virgin Islands and Guam since 1958, and in the Northern Mariana Islands since 1982.

Statistical reports from the 1982 and earlier censuses provide historical figures for the study of long-term time series, and are available in some large libraries. All of the census data published since 1967 are still available for sale on microfiche from the Census Bureau.

AVAILABILITY OF MORE FREQUENT ECONOMIC DATA

While the censuses provide complete enumerations every 5 years, there are many needs for more frequent data as well. The Census Bureau conducts a number of monthly, quarterly, and annual surveys, the results of which appear in publication series such as *Current Business Reports* (retail and wholesale trade and service industries), the *Annual Survey of Manufactures, Current Industrial Reports,* and the *Quarterly Financial Report.* Most of these surveys, while providing more frequent observations, yield less kind-of-business and geographic detail than the censuses. The *County Business Patterns* program offers annual statistics on the number of establishments, employment, and payroll classified by industry within each county.

SOURCES FOR MORE INFORMATION

More information about the scope, coverage, classification system, data items, and publications for each of the economic censuses and related surveys is published in the *Guide to the 1987 Economic Censuses and Related Statistics.* More information on the methodology, procedures, and history of the censuses will be published in the *History of the 1987 Economic Censuses.* Contact Customer Services for information on availability.

CENSUS OF MANUFACTURES

General

This report, from the 1987 Census of Manufactures, is one of a series of 83 industry reports, each of which provides statistics for individual industries or groups of related industries. Additional separate reports will be issued for each State and the District of Columbia and for special subjects such as type of organization, distribution of sales by class of customer, concentration ratios and water use in manufacturing.

The industry reports include such statistics as number of establishments, employment, payroll, value added by manufacture, cost of materials consumed, capital expenditures, product shipments, etc.

State reports present similar statistics for each State and its important metropolitan statistical areas (MSA's), counties, and places. Selected statistical totals for "all manufacturing" have been shown in the State reports for MSA's with 250 employees or more and for counties and places with 450 employees or more.

The *General Summary* report will contain industry, product class, and geographic area statistics summarized in one report. The introduction to the *General Summary* discusses, at greater length, many of the subjects described in this introduction. For example, the *General Summary* text will discuss the relationship of value added by manufacture to National income by industry of origin, the changes in statistical concepts over the history of the censuses, and the valuation problems arising from intracompany transfers between manufacturing plants of a company and between manufacturing plants and sales offices and sales branches of a company.

Scope of Census and Definition of Manufacturing

The 1987 Census of Manufactures covers all establishments with one paid employee or more primarily engaged in manufacturing as defined in the *1987 Standard Industrial*

Classification (SIC) Manual[1]. This is the system of industrial classification developed by experts on classification in Government and private industry under the guidance of the Office of Information and Regulatory Affairs, Office of Management and Budget. This classification system is used by Government agencies as well as many organizations outside the Government.

The SIC Manual defines manufacturing as the mechanical or chemical transformation of substances or materials into new products. The assembly of component parts of products also is considered to be manufacturing if the resulting product is neither a structure nor other fixed improvement. These activities are usually carried on in plants, factories, or mills that characteristically use power-driven machines and materials-handling equipment.

Manufacturing production is usually carried on for the wholesale market, for transfers to other plants of the same company, or to the order of industrial users rather than for direct sale to the household consumer. Some manufacturers in a few industries sell chiefly at retail to household consumers through the mail, through house-to-house routes, or through salespersons. Some activities of a service nature (enameling, engraving, etc.) are included in manufacturing when they are performed primarily for trade. They are considered nonmanufacturing when they are performed primarily to the order of the household consumer.

Relationship Between Annual Survey of Manufactures and Census of Manufactures

The Bureau of the Census conducts the annual survey of manufactures (ASM) in each of the 4 years between the censuses of manufactures. The ASM is a probability-based sample of approximately 56,000 establishments and collects the same industry statistics (employment, payroll, value of shipments, etc.) as the census of manufactures. In addition to collecting the information normally requested on the census form, the establishments in the ASM sample are requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, costs of purchased services, and foreign content of materials consumed. Except for supplemental labor costs, the extra ASM items are collected only in census years.

Establishment Basis of Reporting

The census of manufactures is conducted on an establishment basis. A company operating at more than one location is required to file a separate report for each location. The ASM also is conducted on an establishment basis, but separate reports are filed for just those establishments selected in the sample. Companies engaged in distinctly different lines of activity at one location are requested to submit separate reports if the plant records permit such a separation and if the activities are substantial in size.

In 1987, as in earlier years, a minimum size limit was set for inclusion of establishments in the census. All establishments employing one person or more at any time during the census year are included. The same size limitation has applied since 1947 in censuses and annual surveys of manufactures. In the 1939 and earlier censuses, establishments with less than $5,000 value of products were excluded. The change in the minimum size limit in 1947 does not appreciably affect the historical comparability of the census figures except for data on number of establishments for a few industries. This report excludes information for separately operated administrative offices, warehouses, garages, and other auxiliary units that service manufacturing establishments of the same company (see Auxiliaries).

Manufacturing Universe and Census Report Forms

The 1987 Census of Manufactures universe includes approximately 350,000 establishments. The amounts of information requested from manufacturing establishments were dependent upon a number of factors. The more important considerations were the size of the company and whether it was included in the annual survey of manufactures. The methods of obtaining information for the various subsets of the universe to arrive at the aggregate figures shown in the publication are described below:

1. **Small Single-Establishment Companies Not Sent a Report Form**

   In the 1987 Census of Manufactures, approximately 150,000 small single-establishment companies were excused from filing reports. Selection of these small establishments was done on an industry-by-industry basis and was based on annual payroll and total shipments data as well as on the industry classification codes contained in the administrative records of Federal agencies. The cutoffs were selected so that these administrative-records cases would account for no more than 3 percent of the value of shipments for all manufacturing. Generally, all single-establishment companies with less than five employees were excused, while all establishments with more than 20 employees were mailed forms.

   Information on the physical location of the establishment, as well as information on payrolls, receipts (shipments), and industry classification, was obtained from the administrative records of other Federal agencies under special arrangements, which safeguarded their confidentiality. Estimates of data for these small establishments were developed using industry averages in conjunction with the administrative information. The value of shipments and cost of materials

[1]**Standard Industrial Classification Manual: 1987:** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, Stock No. 041-001-00314-2.

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were not distributed among specific products and materials for these establishments but were included in the product and material "not specified by kind" (n.s.k.) categories.

The industry classification codes included in the administrative-records files were assigned on the basis of brief descriptions of the general activity of the establishment. As a result, an indeterminate number of establishments were erroneously coded at the four-digit SIC level. This was especially true whenever there was a relatively fine line of demarcation between industries or between manufacturing and nonmanufacturing activity.

Sometimes these administrative-record cases were only given a two- or three-digit SIC group. For the 1987 Census of Manufactures, these establishments were sent a separate classification form, which requested information on the products and services of the establishment. This form was used to code many of these establishments to the four-digit SIC level. Establishments that did not return the classification form were coded later to those four-digit SIC industries identified as "not elsewhere classified" (n.e.c.) within the given two- or three-digit industry groups.

As a result of these situations, a number of small establishments may have been misclassified by industry. However, such possible misclassification has no significant effect on the statistics other than on the number of companies and establishments.

The total establishment count for individual industries should be viewed as an approximation rather than a precise measurement. The counts for establishments with 20 employees or more are far more reliable than the count of total number of establishments.

2. **Establishments Sent a Report Form**

The 200,000 establishments covered in the mail canvass were divided into three groups:

a. **ASM sample establishments**—This group consisted of approximately 56,000 establishments covering all the units of large manufacturing establishments as well as a sample of the medium and smaller establishments. The probability of selection was proportionate to size (see appendix, Annual Survey of Manufactures).

In a census of manufactures year, the ASM report form (MA-1000) replaces the first page of the regular census form for those establishments included in the ASM. In addition to information on employment, payroll, and other items normally requested on the regular census form, establishments in the ASM sample were requested to supply information on assets, capital expenditures, retirements, depreciation, rental payments, supplemental labor costs, and costs of purchased services. See appendix A, section 2, for an explanation of these items.

The census part of the report form is one of approximately 200 versions containing product, material, and special inquiries. The diversity of manufacturing activities necessitated the use of these many forms to canvass the 459 manufacturing industries. Each form was developed for a group of related industries.

Appearing on each form was a list of products primary to the group of related industries as well as secondary products and miscellaneous services that establishments classified in these industries were likely to be performing. Respondents were requested to identify the products, the value of each product, and, in a large number of cases, the quantity of the product shipped during the survey year. Space also was provided for the respondent to describe products not specifically identified on the form.

The report form also contained a materials-consumed inquiry, which varied from form to form depending on the industries being canvassed. The respondents were asked to review a list of materials generally used in their production processes. From this list, each establishment was requested to identify those materials consumed during the survey year, the cost of each, and, in certain cases, the quantity consumed. Once again, space was provided for the respondent to describe significant material not identified on the form.

Finally, a wide variety of special inquiries was included to measure activities peculiar to a given industry, such as operations performed and equipment used.

b. **Large and medium establishments (non-ASM)**—Approximately 84,000 establishments were included in this group. A variable cutoff, based on administrative-records payroll data and determined on an industry-by-industry basis, was used to select those establishments that were to receive one of the approximately 200 census of manufactures regular forms. The first page, requesting establishment data for items such as employment and payroll, was standard but did not contain the detailed statistics included on the ASM form. The product, material, and special inquiry sections supplied were based on the historical industry classification of the establishment.

c. **Small single-establishment companies (non-ASM)**—This group consisted of approximately 60,000 establishments. For those industries where application of the variable cutoff for administrative-records cases resulted in a large number of small establishments being included in the mail canvass, an abbreviated or "short" form was used. These establishments received one of the approximately 80 versions of the short form, which requested

summary product and material data and totals but no details on employment, payrolls, cost of materials, inventories, and capital expenditures.

Use of the short form has no adverse effect on published totals for the industry statistics; the same data were collected on the short form as on the long form. However, detailed information on materials consumed was not collected on the short form; thus its use would increase the value of the n.s.k. categories.

Auxiliaries

In this industry report, the data on employment and payroll are limited to operating manufacturing establishments. The census report form filed for auxiliaries (ES-9200) requested a description of the activity of the establishments serviced. However, the manufacturing auxiliaries were coded only to the two-digit major group of the establishments they served; whereas, the operating establishments were coded to a four-digit manufacturing industry. Data for the approximately 10,000 separately operated auxiliaries are included in the geographic area series and in a report issued as part of the 1987 Enterprise Statistics Survey.

Auxiliaries are establishments whose employees are primarily engaged in performing supporting services for other establishments of the same company, rather than for the general public or for other business firms. They can be at different locations from the establishments served or at the same location as one of those establishments but not operating as an integral part thereof and serving two establishments or more. Where auxiliary operations are conducted at the same location as the manufacturing operation and operate as an integral part thereof, they usually are included in the report for the operating manufacturing establishment.

Included in the broad category of auxiliaries are administrative offices. Employees in administrative offices are concerned with the general management of multiestablishment companies, i.e., with the general supervision and control of two units or more, such as manufacturing plants, mines, sales branches, or stores. The functions of these employees may include (1) program planning, including sales research and coordination of purchasing, production, and distribution; (2) company purchasing, including general contracts and purchasing methods; (3) company financial policy and accounting; (4) general engineering, including design of product machinery and equipment, and direction of engineering effort conducted at the individual operation locations; (5) direction of company personnel matters; and (6) legal and patent matters.

Other types of auxiliaries serving the plants or central management of the company include purchasing offices, sales promotion offices, research and development organizations, etc.

Industry Classification of Establishments

Each of the establishments covered in the census was classified in 1 of 459 manufacturing industries in accordance with the industry definitions in the 1987 SIC Manual. The 1987 edition of this manual represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. Appendix A of the 1987 Manual notes the revisions in the four-digit industry levels between 1972/77 and 1987.

An industry is generally defined as a group of establishments producing the same product or a closely related group of products. The product groupings from which industry classifications are derived are based on considerations such as similarity of manufacturing processes, types of materials used, types of customers, and the like. The resulting group of establishments must be significant in terms of number, value added by manufacture, value of shipments, and number of employees. The system operates in such a way that the definitions progressively become narrower with successive additions of numerical digits. For 1987, there are 20 major groups (two-digit SIC), 139 industry groups (three-digit SIC), and 459 industries (four-digit SIC). This represents an expansion of four-digit industries from 452 in 1972/77 and a reduction of three-digit groups from 143 in 1972/77. Product classes and products of the manufacturing industries have been assigned codes based on the industry from which they originate. There are about 11,000 products identified by a seven-digit code. The seven-digit products are considered the primary products of the industry with the same four digits.

Accordingly, an establishment is usually classified in a particular industry on the basis of its major activity during a particular year, i.e., production of the products primary to that industry exceeds, in value, production of the products primary to any other single industry. In a few instances, however, the industry classification of an establishment is not only determined by the products it makes but also by the process employed in operations. Refining of nonferrous metals from ore or rolling and drawing of nonferrous metals (processes which involve heavy capitalization in specialized equipment) would be classified according to the process used during a census year. These establishments then would be "frozen" in that industry during the following ASM years.

In either a census or ASM year, establishments included in the ASM sample with certainty weight, other than those involved with heavily capitalized activities described above, are reclassified by industry only if the change in the primary activity from the prior year is significant or the change has occurred for 2 successive years. This procedure prevents reclassification when there are minor shifts in product mix.

In ASM years, establishments included in the ASM sample with noncertainty weight are not shifted from one industry classification to another. They are retained in the industry where they were classified in the base census year (see appendix, Annual Survey of Manufactures).

However, in the following census year, these ASM plants are allowed to shift from one industry to another.

The result of these rules covering the switching of plants from one industry classification to another is that, at the aggregate level, some industries comprise different mixes of establishments between survey years, and establishment data for such industry statistics as employment and payroll may be tabulated in different industries between survey years. Hence, comparisons between prior-year and current-year published totals, particularly at the four-digit SIC level, should be viewed with caution. This is particularly true for the comparison between the data shown for a census year versus the data shown for the previous ASM year.

As previously noted, the small establishments that may have been misclassified by industry are usually administrative-record cases whose industry codes were assigned on the basis of incomplete descriptions of the general activity of the establishment. Such possible misclassifications have no significant effect on the statistics other than on the number of companies and establishments.

While some establishments produce only the primary products of the industry in which they are classified, all establishments of an industry rarely specialize to this extent. The industry statistics (employment, inventories, value added by manufacture, total value of shipments including resales and miscellaneous receipts, etc.) shown in tables 1a through 5a, therefore, reflect not only the primary activities of the establishments in that industry but also their secondary activities. The product statistics in table 6a represent the output of all establishments whether or not they are classified in the same industry as the product. For this reason, in relating the industry statistics, especially the value of shipments to the product statistics, the composition of the industry's output shown in table 5b should be considered.

The extent to which industry and product statistics may be matched with each other is measured by two ratios which are computed from the figures shown in table 5b. The first of these ratios, called the primary product specialization ratio, measures the proportion of product shipments (both primary and secondary) of the establishments classified in the industry represented by the primary products of those establishments. The second ratio, called the coverage ratio, is the proportion of primary products shipped by the establishments classified in the industry to total shipments of such products by all manufacturing establishments.

However, establishments making products falling into the same industry category may use a variety of processes and materials to produce them. Also, the same industry classification (based on end products) may include both establishments that are highly integrated and those that put only the finishing touches on an already highly fabricated item. For example, the refrigeration equipment industry includes instances of almost complete integration (production of the compressor, condensing unit, electric motor, casting, stamping of the case, and final assembly) all carried on at one plant. On the other hand, the condensing unit, the motor, and the case may be purchased and only assembled into the finished product.

In some instances, separate industry categories have been established for integrated and nonintegrated establishments. For other industries, the census provides separate statistics on the production of intermediate commodities made and used in the producing plant. For some industries characterized by many plants of the same company, separate figures on interplant transfers of products usually are shown.

Differences in the integration of production processes, types of operations, and alternatives in types of materials used should be considered when relating the industry statistics (employment, payrolls, value added, etc.) to the product and material data.

Value of Shipments for the Industry Compared With Value of Product Shipments

This report shows value of shipments data for industries and products. In tables 1a through 5a, these data represent the total value of shipments of all establishments classified in a particular industry. The data include the shipments of the products classified in the industry (primary to the industry), products classified in other industries (secondary to the industry), and miscellaneous receipts (repair work, sale of scrap, research and development, installation receipts, and resales). Value of product shipments shown in table 6a represents the total value of all products shipped that are classified as primary to an industry.

CENSUS DISCLOSURE RULES

In accordance with Federal law governing census reports, no data are published that would disclose the data for an individual establishment or company. However, the number of establishments classified in a specific industry is not considered a disclosure, so this information may be released even though other information is withheld.

The disclosure analysis for the industry statistics in tables 1a through 5a of this report is based on the total value of shipments. When the total value of shipments cannot be shown without disclosing information for individual companies, the complete line is suppressed. However, the suppressed data are included in higher-level totals. Additional disclosure analysis is performed for new capital expenditures that can be suppressed even though value of shipments data are publishable.

SPECIAL TABULATIONS

Special tabulations of data collected in the 1987 Census of Manufactures may be obtained on computer tape or in tabular form. The data will be in summary form and subject to the same rules prohibiting disclosure of confidential

information (including name, address, kind of business, or other data for individual business establishments or companies) as are the regular publications.

Special tabulations are prepared on a cost basis. A request for a cost estimate, as well as exact specifications on the type and format of the data to be provided, should be directed to the Chief, Industry Division, Bureau of the Census, Washington, DC 20233.

ABBREVIATIONS AND SYMBOLS

The following abbreviations and symbols are used in this publication:

-	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies; data are included in higher level totals.
(NA)	Not available.
(NC)	Not comparable.
(S)	Withheld because estimate did not meet publication standards.
(X)	Not applicable.
(Z)	Less than half the unit shown.
do	Ditto.
n.e.c.	Not elsewhere classified.
n.s.k.	Not specified by kind.
pt.	Part.
r	Revised.
SIC	Standard Industrial Classification.

Other abbreviations, such as lb, gal, yd, doz, bbl, and s tons, are used in the customary sense.

CONTACTS FOR DATA USERS

Subject Area	Contact	Phone
Census/ASM		
Durables	Kenneth Hansen	(301) 763-7304
Nondurables	Michael Zampogna	(301) 763-2510
Current Industrial Reports		
Durables	Malcolm Bernhardt	(301) 763-2518
Nondurables	Thomas Flood	(301) 763-5911
Import/Export Publications	Foreign Trade Division	(301) 763-5140
Industry Analysis and Forecasts	International Trade Administration	(202) 377-4356

Users' Guide for Locating Statistics in This Report by Table Number

For explanation of terms, see appendixes

Item	Four-digit industry statistics							Five-digit product class and seven-digit product statistics			
	Historical	Operating ratios	By geographic area	Summary and supplemental	By employment size	By industry and product class specialization	Materials consumed by kind	Industry-product analysis	Product shipments	Product class by geographic area	Historical product class
Number of companies	1a			3a					*6a		
Number of establishments	1a		2	3a	4	5a					
Employment and payroll:											
Number of employees	1a	1b	2	3a	4	5a					
Payroll	1a	1b	2	3a	4	5a					
Supplemental labor costs				3a							
Production workers	1a	1b	2	3a	4	5a					
Production- worker hours	1a	1b	2	3a	4	5a					
Production- worker wages	1a	1b	2	3a	4	5a					
Shipments, cost of materials, and value added:											
Value of shipments (four-digit)	1a	1b	2	3a	4	5a		5b			
Product class shipments (five-digits)									6a	6b	6c
Product shipments (seven-digit)									6a		
Value added by manufacture	1a	1b	2	3a	4	5a					
Cost of materials	1a	1b	2	3a	4	5a					
Fuels and electric energy				3a							
Materials consumed by kind							7				
Inventories:											
Total, end of year	1a			3a	4						
By stage of fabrication				3a							
Capital expenditures, assets, rental payments, and purchased services:											
New capital expenditures	1a		2	3b	4	5a					
Used plant and equipment expenditures				3b							
Gross assets				3b							
Depreciation				3b							
Retirements of buildings and machinery				3b							
Rental payments				3b							
Foreign content of materials consumed				3c							
Purchased services				3c							
Ratios:											
Specialization	1a			3a				5b			
Coverage	1a			3a				5b			

*Number of companies with shipments of more than $100 thousand.

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Tobacco Products

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DESCRIPTION OF INDUSTRIES AND SUMMARY OF FINDINGS

This report shows 1987 Census of Manufactures statistics for establishments classified in each of the following industries:

SIC CODE AND TITLE

2111	Cigarettes
2121	Cigars
2131	Chewing and Smoking Tobacco
2141	Tobacco Stemming and Redrying

The industry statistics (employment, payroll, cost of materials, value of shipments, inventories, etc.) are reported for each establishment as a whole. Aggregates of such data for an industry reflect not only the primary activities of the establishments but also their activities in the manufacture of secondary products as well as their miscellaneous activities (contract work on materials owned by others, repair work, etc.). This fact should be taken into account when comparing industry statistics (tables 1 through 5a) with product statistics (table 6) showing shipments by all industries of the primary products of the specified industry. The extent of the "product mix" is indicated in table 5b, which shows the value of primary and secondary products shipped by establishments classified in the specified industry and the value of primary products of the industry shipped as secondary products by establishments classified in other industries.

Small single-establishment companies with up to 20 employees (cutoff varied by industry) were excluded from the mail portion of the census. For these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated), data on payrolls and receipts were obtained from administrative records of other Federal agencies. The remaining statistics were developed from industry averages.

Establishment data were tabulated based on industry definitions included in the 1987 Standard Industrial Classification (SIC) Manual[1]. The 1987 edition represents a major revision for manufacturing industries from the 1972 edition and its 1977 supplement. In addition to the 1987 SIC revision, changes were made to the product class (five-digit) and product code (seven-digit) categories. The product class and product code comparability between the 1987 and 1982 censuses is shown in the appendixes. These appendixes present, in tabular form, the linkage from 1987 to 1982.

All dollar figures included in this report are at prices current for the year specified and, therefore, unadjusted for changes in price levels. Consequently, when making comparisons to prior years, users should take into consideration the inflation that has occurred.

INDUSTRY 2111, CIGARETTES

This industry is made up of establishments primarily engaged in the manufacturing of cigarettes. Establishments primarily engaged in manufacturing cigars are classified in industry 2121.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2111, Cigarettes, had employment of 32.0 thousand. The employment figure was 23 percent below the 41.5 thousand reported in 1982. Compared with 1986, employment decreased 2 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were North Carolina, Virginia, and Kentucky. These same States were the leaders in 1982.

The total value of production for establishments classified in this industry was $17.4 billion. The products primary to industry 2111, no matter in what industry they were produced, appear in table 6a and aggregate to $16.7 billion.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the cigarettes industry amounted to $4.4 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for less than 1 percent of total value of shipments.

[1] **Standard Industrial Classification Manual: 1987.** For sale by Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. Stock No. 041-001-00314-2.

INDUSTRY 2121, CIGARS

This industry is made up of establishments primarily engaged in the manufacturing of cigars. Establishments primarily engaged in manufacturing cigarettes are classified in industry 2111.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2121, Cigars, had employment of 2.5 thousand. The employment figure was 51 percent below the 5.1 thousand reported in 1982. Compared with 1986, employment decreased 32 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Alabama and Florida. This represents a shift from 1982 when Florida, Alabama, and Pennsylvania were the leading States.

The total value of production for establishments classified in this industry was $191.5 million. The products primary to industry 2121, no matter in what industry they were produced, appear in table 6a and aggregate to $204.1 million.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the cigars industry amounted to $85.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 13 percent of total value of shipments.

INDUSTRY 2131, CHEWING AND SMOKING TOBACCO

This industry is made up of establishments primarily engaged in the manufacturing of chewing and smoking tobacco and snuff.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2131, Chewing and Smoking Tobacco, had employment of 3.3 thousand. The employment figure was 6 percent above the 3.1 thousand reported in 1982. Compared with 1986, employment was unchanged. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were Kentucky and Tennessee. These same States were the leaders in 1982.

The total value of production for establishments classified in this industry was $1.1 billion.

Establishments in virtually all industries ship secondary products as well as products primary to the industry to which they are classified and have some miscellaneous receipts, such as resales and contract receipts. Industry 2131 produced $1.0 billion of chewing and smoking tobacco products considered primary to the industry. Secondary products, miscellaneous receipts, resales, and contract work have been withheld to avoid disclosing data for individual companies. The products primary to industry 2131, no matter in what industry they were produced, appear in table 6a and aggregate to $1.0 billion. For further explanation of specialization and coverage ratios, see table 5b and the appendixes.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the chewing and smoking tobacco industry amounted to $321.5 million. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 1 percent of total value of shipments.

INDUSTRY 2141, TOBACCO STEMMING AND REDRYING

This industry is made up of establishments primarily engaged in the stemming and redrying of tobacco. Establishments primarily engaged in selling leaf tobacco as merchant wholesalers, agents, or brokers and which also may be engaged in stemming tobacco are classified in major group 51. Leaf tobacco warehouses which may be engaged in stemming tobacco are classified in major group 42.

The 1987 definition of this industry is the same as that used in the 1972/7 Standard Industrial Classification (SIC) system. The SIC number and title also are the same.

In the 1987 Census of Manufactures, Industry 2141, Tobacco Stemming and Redrying, had employment of 6.9 thousand. The employment figure was 17 percent below the 8.3 thousand reported in 1982. Compared with 1986, employment decreased 1 percent. The 1986 data are based on the Bureau's annual survey of manufactures (ASM), which is a sample survey conducted each year between censuses. The leading States in employment in 1987 were North Carolina and Virginia. These same States were the leaders in 1982.

The total value of production for establishments classified in this industry was $2.1 billion.

Establishments in virtually all industries produced secondary products as well as products primary to the industry to which they are classified and have some miscellaneous

receipts, such as resales and contract receipts. Industry 2141 produced $1.8 billion of tobacco stemming and redrying products considered primary to the industry, $8.6 million of secondary products, and had $248.5 million of miscellaneous receipts, resales, and contract work. The products primary to industry 2141, no matter in what industry they were produced, appear in table 6a and aggregate to $2.2 billion.

The total cost of materials, services, and fuels and electric energy used by establishments classified in the tobacco stemming and redrying industry amounted to $1.7 billion. Data on specific materials consumed appear in table 7.

Single-establishment companies in this industry with up to 5 employees were excluded from the mail portion of the census. The data for these establishments (and a small number of larger establishments whose reports were not received at the time the data were tabulated) were obtained from administrative records of other agencies or developed from industry averages. These establishments accounted for 2 percent of total value of shipments.

Table 1a. Historical Statistics for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year[1]	Companies[2] (no.)	All establishments[3] Total (no.)	All establishments[3] With 20 employees or more (no.)	All employees Number (1,000)	All employees Payroll (million dollars)	Production workers Number (1,000)	Production workers Hours (millions)	Production workers Wages (million dollars)	Value added by manufacture[4] (million dollars)	Cost of materials[5] (million dollars)	Value of shipments[6] (million dollars)	New capital expenditures[7] (million dollars)	End-of-year inventories[4] (million dollars)	Ratios Specialization[8] (percent)	Ratios Coverage[9] (percent)
INDUSTRY 2111, CIGARETTES															
1987 Census	8	12	12	32.0	1 233.7	23.6	42.9	860.3	12 970.7	4 396.6	17 372.0	410.2	4 950.4	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	32.7	1 101.4	24.0	43.8	758.1	11 501.1	4 205.2	15 699.1	601.6	4 956.1	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	35.5	1 130.7	26.6	47.9	799.7	10 540.7	4 362.1	14 896.8	622.2	5 163.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	36.8	1 123.0	27.0	50.2	786.1	9 538.0	4 403.3	13 938.4	624.8	5 520.5	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	38.6	1 112.1	29.2	52.3	800.6	8 624.0	3 986.0	12 610.5	570.0	5 697.8	(NA)	(NA)
1982 Census	8	14	13	41.5	1 093.7	32.2	58.5	801.0	8 098.3	4 052.3	12 126.8	570.9	5 682.7	97	(D)
1981 ASM	(NA)	(NA)	(NA)	42.3	994.2	33.9	62.9	736.7	6 536.3	4 025.6	10 559.4	578.9	3 359.1	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	39.3	842.2	31.4	59.9	628.7	5 386.9	3 673.2	9 055.9	326.0	2 778.3	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	38.7	708.5	31.4	59.3	533.5	4 670.6	3 051.9	7 720.8	194.2	2 658.8	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	37.8	620.1	31.3	58.8	476.2	3 946.8	3 078.7	7 017.4	166.9	2 719.5	(NA)	(NA)
1977 Census	8	14	13	39.0	567.7	32.5	58.9	442.0	3 803.1	2 573.5	6 377.4	118.0	2 652.2	97	99
1976 ASM	(NA)	(NA)	(NA)	40.8	521.4	34.5	64.8	412.0	3 591.9	2 436.1	6 029.6	98.3	2 551.3	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	40.3	477.3	34.1	62.9	379.0	3 203.2	2 196.2	5 398.6	102.3	2 462.3	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	40.9	438.2	35.0	64.4	351.4	2 689.1	1 897.7	4 585.0	147.3	2 271.8	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	41.4	400.7	35.8	67.2	324.7	2 453.5	1 731.3	4 181.2	147.6	1 791.9	(NA)	(NA)
1972 Census	7	12	11	38.1	344.8	33.4	62.2	286.5	2 187.8	1 554.7	3 744.6	101.5	1 700.8	96	100
INDUSTRY 2121, CIGARS															
1987 Census	16	20	18	2.5	35.7	2.0	4.0	26.2	108.3	85.5	191.5	5.0	47.3	(D)	89
1986 ASM	(NA)	(NA)	(NA)	3.7	55.4	3.0	5.7	38.1	147.2	104.9	252.1	7.1	64.5	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	4.0	50.1	3.4	6.3	35.4	136.8	107.8	243.8	5.2	63.6	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	4.2	50.7	3.6	6.4	37.0	135.6	112.2	248.3	4.5	56.6	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	5.0	58.4	4.3	8.1	42.8	156.7	133.4	288.9	5.5	54.0	(NA)	(NA)
1982 Census	54	60	30	5.1	58.5	4.5	8.5	45.4	133.3	120.5	253.7	7.4	48.5	99	92
1981 ASM	(NA)	(NA)	(NA)	5.7	56.5	5.1	9.8	44.7	149.9	126.2	275.9	4.9	48.4	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	6.1	54.9	5.5	10.1	43.4	135.2	120.7	255.7	2.0	42.5	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	6.8	53.3	6.2	11.3	42.8	133.1	117.6	251.1	4.3	45.7	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	7.6	56.1	7.0	12.7	45.4	148.9	123.7	272.7	3.8	53.8	(NA)	(NA)
1977 Census	94	101	34	7.7	54.9	7.0	12.7	44.0	125.6	117.8	242.7	3.3	57.8	(D)	92
1976 ASM	(NA)	(NA)	(NA)	8.4	55.7	7.6	13.7	44.5	147.5	120.4	267.9	4.7	61.2	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	9.8	58.2	8.8	16.0	47.9	166.1	129.4	296.1	2.7	66.2	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	11.7	62.5	10.8	18.8	52.2	174.3	134.4	309.7	4.5	59.9	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	13.0	66.0	11.8	21.9	54.4	187.4	147.7	334.4	3.2	57.9	(NA)	(NA)
1972 Census	113	132	51	13.5	68.2	12.1	22.4	54.8	192.6	146.7	339.7	5.4	62.5	99	91
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO															
1987 Census	23	29	19	3.3	77.2	2.2	4.3	46.2	791.9	321.5	1 114.3	8.9	167.7	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	3.3	78.3	2.2	4.3	46.9	730.4	327.7	1 06[illegible]	10.1	159.8	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	3.0	61.7	2.1	3.7	36.5	641.1	306.0	946.6	13.1	170.5	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	2.6	52.4	1.9	3.6	35.0	544.6	262.7	805.0	12.9	137.8	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	3.0	53.9	2.4	4.5	37.9	449.6	247.7	697.9	12.1	143.1	(NA)	(NA)
1982 Census	22	28	18	3.1	51.6	2.4	4.4	37.4	420.5	246.8	665.4	8.3	143.9	(D)	84
1981 ASM	(NA)	(NA)	(NA)	3.8	51.1	2.7	5.2	35.8	408.5	208.9	610.9	(S)	136.6	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	3.6	43.7	2.8	5.1	30.4	342.1	201.6	544.4	(S)	124.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	3.4	40.1	2.7	5.0	28.1	280.2	220.1	499.6	5.7	113.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	3.1	35.1	2.4	4.7	24.8	233.0	195.7	428.7	8.2	114.7	(NA)	(NA)
1977 Census	28	35	19	3.2	32.1	2.5	4.4	22.0	188.9	166.4	354.3	7.3	99.8	97	75
1976 ASM	(NA)	(NA)	(NA)	3.1	29.4	2.4	4.1	20.2	161.0	136.0	297.1	2.9	87.7	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	3.1	27.1	2.4	4.3	19.9	142.6	120.4	262.1	2.8	74.9	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	3.0	23.8	2.4	4.5	17.1	121.3	101.4	185.6	16.2	63.2	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	3.0	23.2	2.4	4.5	15.3	111.6	81.9	194.1	19.1	39.4	(NA)	(NA)
1972 Census	28	37	22	3.3	23.0	2.6	4.7	15.0	103.2	77.3	180.2	12.1	40.0	96	84
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING															
1987 Census	64	76	34	6.9	139.0	4.8	10.2	77.7	394.9	1 687.0	2 079.2	40.2	396.6	(D)	(D)
1986 ASM	(NA)	(NA)	(NA)	6.4	125.3	4.5	9.2	69.3	345.9	1 703.5	2 059.4	40.3	745.4	(NA)	(NA)
1985 ASM	(NA)	(NA)	(NA)	6.7	126.9	4.8	9.9	69.3	575.0	1 849.8	2 419.6	28.0	813.2	(NA)	(NA)
1984 ASM	(NA)	(NA)	(NA)	8.1	127.8	6.1	12.5	75.1	568.4	1 904.8	2 448.0	28.0	1 151.7	(NA)	(NA)
1983 ASM	(NA)	(NA)	(NA)	8.2	130.6	6.0	12.6	76.7	461.8	2 173.7	2 654.7	61.0	1 287.9	(NA)	(NA)
1982 Census	34	60	46	8.3	119.8	6.2	12.3	73.3	312.6	2 680.2	3 015.4	110.7	1 311.0	(D)	(D)
1981 ASM	(NA)	(NA)	(NA)	9.5	117.4	7.3	13.6	74.2	209.2	2 330.1	2 556.0	84.1	1 075.7	(NA)	(NA)
1980 ASM	(NA)	(NA)	(NA)	9.1	104.0	6.9	12.9	65.0	283.3	2 095.4	2 338.6	26.4	919.0	(NA)	(NA)
1979 ASM	(NA)	(NA)	(NA)	9.7	104.1	7.4	14.5	63.5	258.8	1 850.5	2 129.8	33.0	823.9	(NA)	(NA)
1978 ASM	(NA)	(NA)	(NA)	10.6	101.2	8.3	16.0	65.4	278.0	1 978.6	2 233.9	75.2	906.2	(NA)	(NA)
1977 Census	39	78	57	10.7	96.1	8.4	16.6	62.6	216.5	1 872.1	2 076.2	52.8	902.2	(D)	94
1976 ASM	(NA)	(NA)	(NA)	12.5	97.6	10.3	19.9	66.8	227.5	1 966.8	2 191.6	23.9	927.4	(NA)	(NA)
1975 ASM	(NA)	(NA)	(NA)	13.0	92.0	10.9	21.1	66.3	209.6	1 896.4	2 103.1	37.1	887.3	(NA)	(NA)
1974 ASM	(NA)	(NA)	(NA)	12.0	82.6	9.9	19.2	57.8	231.9	1 832.5	2 059.6	17.4	807.7	(NA)	(NA)
1973 ASM	(NA)	(NA)	(NA)	11.2	67.5	9.3	16.9	45.8	147.6	1 485.7	1 631.0	10.5	681.8	(NA)	(NA)
1972 Census	46	91	70	11.4	66.0	9.3	17.4	44.5	153.6	1 502.4	1 656.8	14.1	690.1	100	97

[1]In annual survey of manufactures (ASM) years, data are estimates based on a representative sample of establishments canvassed annually and may differ from results of a complete canvass of all establishments. ASM publication shows percentage standard errors. Unless otherwise noted, for data prior to 1972, see 1972 Census of Manufactures, vol. II, table 1a of the industry chapter.

[2]For the Census, a company is defined as a business organization consisting of one establishment or more under common ownership or control.

[3]Includes establishments with payroll at any time during year.

[4]Beginning with the 1982 Census of Manufactures, all respondents were requested to report their inventories at (the lower of) cost or market prior to adjustment to LIFO cost. This is a change from prior Censuses and annual surveys of manufactures in which respondents were permitted to value their inventories using any generally accepted accounting method. Consequently, inventories and value added by manufacture are not comparable to prior-year data.

[5]Detailed data on materials consumed by type are shown in table 7.

[6] Data in value of shipments column represents value of production rather than value of shipments.

[7]Detailed data on new machinery and equipment expenditures are provided in table 3c.

[8]Represents ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for establishments classified in the industry.

[9]Represents ratio of primary products shipped by establishments classified in industry to total shipments of such products by all manufacturing establishments, wherever classified.

Table 1b. Selected Operating Ratios for the Industry: 1987 and Earlier Years

[1987 industry definitions are the same as in the 1972/77 Standard Industrial Classification (SIC) system. Excludes data for auxiliaries. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Year	Payroll per employee (dollars)	Production workers as percent of total employment (percent)	Annual hours of production workers (number)	Average hourly earnings of production workers (dollars)	Cost of materials as percent of value of shipments (percent)	Cost of materials and payroll as percent of value of shipments (percent)	Value added per employee (dollars)	Payroll as percent of value added (percent)	Value added per production worker hour (dollars)
INDUSTRY 2111, CIGARETTES									
1987 Census	38 553	74	1 818	20.05	25	32	405 334	10	302.35
1986 ASM	33 681	73	1 825	17.31	27	34	351 716	10	262.58
1985 ASM	31 850	75	1 801	16.70	29	37	296 921	11	220.06
1984 ASM	30 516	73	1 859	15.66	32	40	259 185	12	190.00
1983 ASM	28 810	76	1 791	15.31	32	40	223 420	13	164.89
1982 Census	26 354	78	1 817	13.69	33	42	195 140	14	138.43
1981 ASM	23 503	80	1 855	11.71	38	48	154 522	15	103.92
1980 ASM	21 430	80	1 908	10.50	41	50	137 071	16	89.93
1979 ASM	18 307	81	1 889	9.00	40	49	120 687	15	78.76
1978 ASM	16 404	83	1 879	8.10	44	53	104 413	16	67.12
1977 Census	14 556	83	1 812	7.50	40	49	97 515	15	64.57
1976 ASM	12 779	85	1 878	6.36	40	49	88 037	15	55.43
1975 ASM	11 043	85	1 845	6.03	41	50	79 484	15	50.93
1974 ASM	10 713	86	1 840	5.46	41	51	65 748	16	41.76
1973 ASM	9 676	86	1 877	4.83	41	51	59 263	16	36.51
1972 Census	9 049	88	1 862	4.61	42	51	57 423	16	35.17
INDUSTRY 2121, CIGARS									
1987 Census	14 280	80	2 000	6.55	45	63	42 520	34	26.57
1986 ASM	14 972	81	1 900	6.68	42	64	39 784	38	25.82
1985 ASM	12 525	85	1 853	5.62	44	65	34 200	37	21.71
1984 ASM	12 071	86	1 778	5.76	45	66	32 286	37	21.19
1983 ASM	11 660	86	1 884	5.28	46	66	31 340	37	19.35
1982 Census	11 470	88	1 889	5.34	47	71	26 137	44	15.68
1981 ASM	9 912	89	1 922	4.56	46	66	26 298	38	15.30
1980 ASM	9 000	90	1 836	4.30	47	69	22 164	41	13.39
1979 ASM	7 838	91	1 823	3.79	47	68	19 574	40	11.78
1978 ASM	7 381	92	1 814	3.57	45	66	19 592	38	11.72
1977 Census	7 129	91	1 814	3.46	49	71	16 312	44	9.89
1976 ASM	6 630	90	1 803	3.25	45	68	17 560	38	10.77
1975 ASM	5 938	90	1 818	2.99	44	63	16 949	35	10.38
1974 ASM	5 341	92	1 741	2.78	43	64	14 897	36	9.27
1973 ASM	5 076	91	1 856	2.48	44	64	14 415	35	8.56
1972 Census	5 051	90	1 851	2.45	43	63	14 267	35	8.60
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO									
1987 Census	23 394	67	1 955	10.74	29	38	239 970	10	184.16
1986 ASM	23 727	67	1 955	10.91	31	38	221 333	11	169.86
1985 ASM	20 566	70	1 762	9.86	32	39	213 700	10	173.27
1984 ASM	20 153	73	1 895	9.72	33	39	209 462	10	151.28
1983 ASM	17 966	80	1 875	8.42	35	43	149 867	12	99.91
1982 Census	16 645	77	1 833	8.50	37	45	135 645	12	95.57
1981 ASM	14 194	75	(S)	6.88	34	43	112 917	13	78.17
1980 ASM	12 138	78	(S)	5.96	37	45	95 028	13	67.08
1979 ASM	11 794	79	1 852	5.62	44	52	82 412	14	56.04
1978 ASM	11 322	77	1 958	5.28	46	54	75 161	15	49.57
1977 Census	10 031	78	1 760	5.00	47	56	59 031	17	42.93
1976 ASM	9 483	77	1 708	4.93	46	56	51 935	18	39.27
1975 ASM	8 741	77	1 792	4.63	46	56	46 000	19	33.16
1974 ASM	7 933	80	1 875	3.80	55	67	40 433	20	26.96
1973 ASM	7 733	80	1 875	3.40	42	54	37 200	21	24.80
1972 Census	6 969	79	1 808	3.19	43	56	31 273	22	21.96
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING									
1987 Census	20 145	70	2 125	7.62	81	88	57 232	35	38.72
1986 ASM	19 578	70	2 044	7.53	83	89	54 047	36	37.60
1985 ASM	18 940	72	2 063	7.00	78	82	85 621	22	58.08
1984 ASM	15 777	75	2 049	6.01	78	83	70 173	22	45.47
1983 ASM	15 926	73	2 100	6.09	82	87	56 317	28	36.65
1982 Census	14 433	75	1 984	5.96	89	93	37 663	38	25.41
1981 ASM	12 357	77	1 863	5.48	91	96	22 021	56	15.38
1980 ASM	11 428	76	1 870	5.04	90	94	31 132	37	21.96
1979 ASM	10 731	76	1 959	4.38	87	92	26 680	40	17.85
1978 ASM	9 547	78	1 928	4.09	89	93	26 226	36	17.38
1977 Census	8 981	79	1 976	3.77	90	95	20 234	44	13.04
1976 ASM	7 808	82	1 932	3.36	90	94	18 200	43	11.43
1975 ASM	7 076	84	1 936	3.14	90	95	16 123	44	9.93
1974 ASM	6 883	83	1 939	3.01	89	93	19 325	36	12.08
1973 ASM	6 026	83	1 817	2.71	91	95	13 179	46	8.73
1972 Census	5 789	82	1 871	2.56	91	95	13 474	43	8.83

Note: For qualifications of data, see footnotes on table 1a.

Table 2. Industry Statistics for Selected States: 1987 and 1982

[Excludes data for auxiliaries. Includes data for States with 150 employees or more. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and geographic area	1987											1982	
		All establishments		All employees		Production workers							
	E[1]	Total (no.)	With 20 employees or more (no.)	Number[2] (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)	Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	All employees[2] (1,000)	Value added by manufacture (million dollars)
INDUSTRY 2111, CIGARETTES													
United States	–	**12**	**12**	**32.0**	**1 233.7**	**23.6**	**42.9**	**860.3**	**12 970.7**	**4 396.6**	**17 372.0**	**410.2**	**41.5**	**8 098.3**
Georgia	–	1	1	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)
Kentucky	–	1	1	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
North Carolina	–	6	6	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	18.6	4 079.3
Virginia	–	2	2	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
INDUSTRY 2121, CIGARS													
United States	E1	**20**	**18**	**2.5**	**35.7**	**2.0**	**4.0**	**28.2**	**106.3**	**85.5**	**191.5**	**5.0**	**5.1**	**133.3**
Alabama	–	2	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.6	15.3
Florida	–	7	6	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	1.6	26.2
Georgia	–	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	AA	(D)
Pennsylvania	–	4	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	2.0	73.6
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO													
United States	–	**29**	**19**	**3.3**	**77.2**	**2.2**	**4.3**	**46.2**	**791.9**	**321.5**	**1 114.3**	**8.9**	**3.1**	**420.5**
Georgia	–	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Illinois	–	1	1	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Kentucky	–	5	4	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
North Carolina	–	2	2	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	BB	(D)
Tennessee	–	5	5	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING													
United States	–	**78**	**34**	**6.9**	**139.0**	**4.8**	**10.2**	**77.7**	**394.9**	**1 687.0**	**2 079.2**	**40.2**	**8.3**	**312.6**
Florida	E1	24	2	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
Kentucky	–	6	4	BB	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	.8	31.1
New York	E9	4	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(NA)	(NA)
North Carolina	–	12	11	FF	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	FF	(D)
Pennsylvania	E2	5	3	.4	6.0	.3	.6	4.0	10.7	62.8	74.1	(D)	BB	(D)
South Carolina	–	2	1	AA	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Tennessee	–	3	3	CC	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	CC	(D)
Virginia	–	8	8	EE	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	EE	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those States where estimated value of shipments data based on administrative-record data account for 10 percent or more of figure shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to 39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Statistics for some producing States have been withheld to avoid disclosing data for individual companies. However, for States with 150 employees or more, number of establishments is shown and employment-size range is indicated by one of the following symbols: AA—150 to 249 employees; BB—250 to 499 employees; CC—500 to 999 employees; EE—1,000 to 2,499 employees; FF—2,500 employees or more.

Table 3a. Summary Statistics for the Industry: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Companies ..... number	8	18	23	64
All establishments ..... do.	12	20	29	76
With 1 to 19 employees ..... do.	–	2	10	42
With 20 to 99 employees ..... do.	3	8	8	14
With 100 employees or more ..... do.	9	10	11	20
Employment and labor costs:				
Employees 1,000	32.0	2.5	3.3	6.9
Compensation, total ..... mil dol.	1 594.3	44.3	98.4	168.3
Annual payroll ..... do.	1 233.7	35.7	77.2	139.0
Fringe benefits ..... do.	360.6	8.6	21.2	29.3
Social Security and other legally required payments ..... do.	102.2	4.1	6.6	13.6
Employer payments and other programs ..... do.	258.5	4.5	14.6	15.6

See footnotes at end of table.

Table 3a. Summary Statistics for the Industry: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Production workers:				
Average for year 1,000	23.6	2.0	2.2	4.8
March ..... do	23.5	2.1	2.2	4.8
May ..... do	23.5	2.0	2.2	3.7
August ..... do	23.6	2.0	2.3	4.6
November ..... do	23.7	2.1	2.2	6.2
Hours ..... millions	42.9	4.0	4.3	10.2
January to March ..... do	10.1	1.0	1.0	2.7
April to June ..... do	11.0	1.0	1.1	1.6
July to September ..... do	10.8	1.0	1.1	2.2
October to December ..... do	11.0	1.0	1.1	3.6
Wages ..... mil dol	860.3	26.2	46.2	77.7
Value added by manufacture ..... do	12 970.7	106.3	791.9	394.9
Cost of materials[1] ..... do	4 396.6	85.5	321.5	1 687.0
Materials, parts, containers, etc., consumed[2] ..... do	4 036.1	80.6	269.4	1 461.7
Resales ..... do	263.4	2.2	43.4	189.3
Fuels ..... do	39.1	.6	2.8	13.6
Purchased electricity ..... do	50.2	1.8	3.7	18.7
Contract work ..... do	7.8	.3	2.3	3.7
Quantity of electric energy used for heat and power:				
Purchased ..... mil kWh	1 053.1	29.1	68.0	376.6
Generated less sold ..... do	146.3	-	-	.8
Total value of shipments ..... mil dol	17 372.0	191.5	1 114.3	2 079.2
Primary products ..... do	(D)	(D)	(D)	(D)
Secondary products ..... do	(D)	(D)	(D)	(D)
Miscellaneous receipts, total ..... do	(D)	(D)	(D)	248.5
Value of resales ..... do	(D)	(D)	(D)	190.2
Contract receipts ..... do	(D)	(D)	(D)	22.8
Other miscellaneous receipts ..... do	(D)	(D)	(D)	35.5
Inventories by stage of fabrication:				
Beginning of 1987 ..... mil dol	4 997.6	46.6	182.5	483.8
Finished goods ..... do	434.1	11.8	28.4	212.3
Work in process ..... do	78.4	4.9	17.4	32.3
Materials and supplies ..... do	4 485.1	29.9	136.6	239.2
End of 1987 ..... do	4 950.4	47.3	187.7	396.6
Finished goods ..... do	513.4	14.3	26.5	185.8
Work in process ..... do	73.7	5.2	16.5	35.0
Materials and supplies ..... do	4 363.3	27.8	124.7	175.8
Primary product specialization ratio ..... percent	(D)	(D)	(D)	(D)
Coverage ratio ..... do	(D)	89	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

[1]Data on purchased services for the repair of buildings and machinery and for communication services are not included in cost of materials, etc., but are shown in table 3c.
[2]Data on materials consumed by type are shown in table 7. Data on amount purchased or transferred from foreign sources are shown in table 3c.

Table 3b. Gross Book Value of Depreciable Assets, Capital Expenditures, Retirements, Depreciation, and Rental Payments: 1987

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)	Cigars (SIC 2121)	Chewing and smoking tobacco (SIC 2131)	Tobacco stemming and redrying (SIC 2141)
Gross book value of depreciable assets:				
Total:				
Beginning of year	4 679.7	48.6	204.1	770.7
New capital expenditures[1]	410.2	5.0	8.9	40.2
Used capital expenditures	46.8	.2	1.4	5.8
Retirements	65.9	.5	4.8	14.1
End of year	5 070.7	53.3	209.6	802.7
Buildings and other structures:				
Beginning of year	1 236.0	14.3	76.5	392.0
New capital expenditures	78.3	1.4	.7	9.5
Used capital expenditures	.9	(Z)	.1	1.3
Retirements	2.8	.1	.1	2.8
End of year	1 312.5	15.5	77.3	400.0
Machinery and equipment:				
Beginning of year	3 443.7	34.4	127.6	378.8
New capital expenditures[1]	331.9	3.6	8.2	30.7
Used capital expenditures	45.9	.2	1.3	4.5
Retirements	63.3	.3	4.7	11.3
End of year	3 758.2	37.8	132.3	402.7
Depreciation charges during 1987:				
Total	256.9	3.3	11.8	40.3
Buildings and other structures	42.4	.9	2.6	16.3
Machinery and equipment	214.5	2.3	9.3	24.0
Rental payments:				
Total	22.8	.8	2.2	3.7
Buildings and other structures	7.7	.5	.8	1.9
Machinery and equipment	15.1	.3	1.4	1.8

Note: Retirements and depreciation data for establishments not included in the ASM sample were extrapolated from the historical ratio of retirements or depreciation to assets. These ratios were developed at the industry level.

[1]Data on new machinery and equipment expenditures by type are provided in table 3c.

Table 3c. Supplemental Industry Statistics Based on Sample Estimates: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Item	Cigarettes (SIC 2111)		Cigars (SIC 2121)		Chewing and smoking tobacco (SIC 2131)		Tobacco stemming and redrying (SIC 2141)	
	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)	Amount (million dollars)	Relative standard error of estimate[1] (percent)
Purchased services:								
Cost of purchased services for the repair of–								
Buildings and other structures	18.6	(X)	.4	(X)	.4	(X)	3.0	(X)
Response coverage ratio (percent)[2]	99.7	(X)	76.8	(X)	80.7	(X)	57.8	(X)
Machinery	42.2	(X)	1.0	(X)	1.9	(X)	8.5	(X)
Response coverage ratio (percent)[2]	99.7	(X)	65.7	(X)	99.9	(X)	63.7	(X)
Cost of purchased communication services	5.6	(X)	.3	(X)	.9	(X)	1.4	(X)
Response coverage ratio (percent)[2]	99.7	(X)	76.8	(X)	80.7	(X)	63.7	(X)
New machinery and equipment expenditures	331.9	(X)	3.6	(X)	8.2	(X)	30.7	(X)
Automobiles, trucks, etc.	.4	1	.2	6	1.1	23	.5	1
Computers and peripheral	26.4	1	.5	15	.7	20	6.4	1
All other	305.2	1	3.0	3	6.4	6	23.8	1
Adjustment ratio[3]	1.0	(X)	1.0	(X)	1.0	(X)	1.1	(X)
Cost of materials, components, parts, etc., used	4 036.1	(X)	80.6	(X)	269.4	(X)	1 461.7	(X)
Materials purchased or transferred from foreign sources[4]	689.6	1	9.6	30	10.4	23	97.6	1
Materials purchased or transferred from domestic sources	3 346.4	1	71.0	5	259.0	1	1 364.2	1
Adjustment ratio[3]	1.2	(X)	1.4	(X)	1.0	(X)	1.4	(X)

[1]For description of relative standard error of estimate, see Qualifications of the Data in appendixes.
[2]Measure of extent to which respondents reported each item. Derived for each item by calculating the ratio of weighted employment for those sample establishments that reported the specific inquiry to total employment for all establishments classified in industry. (See appendixes for explanation of sample weight.)
[3]Detail has been adjusted upwards to account for nonresponse. Inverse of the ratio shown represents a measure of the response to the inquiry. (See appendixes for further explanation.)
[4]Data may understate the true cost of imported parts, components, and supplies since some respondents do not know the origin of these materials. Includes cases where materials were purchased from secondary suppliers of where they were transferred from company-operated warehouses or other distribution points. Direct purchases from foreign suppliers and importers by domestic manufacturing establishments are believed to be reported accurately.

Table 4. Industry Statistics by Employment Size of Establishment: 1987

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2111, CIGARETTES												
Total	–	12	32.0	1 233.7	23.6	42.9	860.3	12 970.7	4 396.6	17 372.0	410.2	4 950.4
Establishments with an average of–												
20 to 49 employees	–	3	32.0	1 233.7	23.6	42.9	860.3	12 970.7	4 396.6	17 372.0	410.1	4 950.4
250 to 499 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
1,000 to 2,499 employees	–	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2,500 employees or more	–	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2121, CIGARS												
Total	E1	20	2.5	35.7	2.0	4.0	26.2	106.3	85.5	191.5	5.0	47.3
Establishments with an average of–												
10 to 19 employees	E8	2	.2	3.9	.2	.3	2.8	7.0	23.9	31.0	.3	7.0
20 to 49 employees		5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
50 to 99 employees	–	3	.2	2.7	.2	.3	1.7	6.1	2.9	8.4	.2	4.7
100 to 249 employees	–	8	2.1	29.2	1.7	3.4	21.7	93.2	58.7	152.2	4.5	35.7
250 to 499 employees	–	2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
INDUSTRY 2131, CHEWING AND SMOKING TOBACCO												
Total	–	29	3.3	77.2	2.2	4.3	48.2	791.9	321.5	1 114.3	8.9	167.7
Establishments with an average of–												
1 to 4 employees	E9	5	(Z)	.1	(Z)	(Z)	.1	1.1	.5	1.6	(Z)	.3
5 to 9 employees	E9	4	(Z)	.4	(Z)	.1	.2	3.1	1.3	4.3	(D)	.8
10 to 19 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
20 to 49 employees	–	4	.1	2.1	.1	.2	1.2	8.4	12.9	21.7	(D)	22.8
50 to 99 employees	–	4	.3	6.4	.2	.4	4.0	24.8	41.6	65.8	(D)	15.8
100 to 249 employees	–	7	1.2	27.8	.8	1.6	17.5	132.8	95.0	227.7	1.8	49.5
250 to 499 employees	–	3	1.6	40.4	1.0	2.0	23.2	621.9	170.3	793.2	3.5	76.6
500 to 999 employees	–	1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Covered by administrative records[2]	E9	8	(Z)	.2	(Z)	(Z)	.1	2.5	1.0	3.5	(Z)	.6

See footnotes at end of table.

Table 4. Industry Statistics by Employment Size of Establishment: 1987—Con.

[For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and employment size class	E[1]	All establishments (no.)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)	End-of-year inventories (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)					
INDUSTRY 2141, TOBACCO STEMMING AND REDRYING												
Total	–	**76**	**6.9**	**139.0**	**4.8**	**10.2**	**77.7**	**394.9**	**1 687.0**	**2 079.2**	**40.2**	**396.6**
Establishments with an average of—												
1 to 4 employees	E9	29	.1	.6	(Z)	.1	.3	.7	4.2	4.9	(Z)	1.1
5 to 9 employees	E9	5	(Z)	.5	(Z)	(Z)	.3	2.6	2.7	5.3	.1	1.4
10 to 19 employees	E6	8	.1	1.4	.1	.1	.5	3.9	15.1	19.0	.2	5.2
20 to 49 employees	–	4	.1	1.6	.1	.2	1.0	4.9	9.5	14.4	17.6	4.2
50 to 99 employees	–	10	.7	18.9	.5	1.1	11.2	62.5	348.2	410.7	(D)	74.9
100 to 249 employees	–	11	2.0	33.4	1.5	3.3	20.8	58.3	301.6	355.6	3.6	88.1
250 to 499 employees	–	6	2.2	40.8	1.6	3.1	20.0	139.7	480.3	620.1	7.7	81.0
500 to 999 employees	–	3	1.6	42.0	1.0	2.2	23.3	122.3	525.5	649.3	11.2	140.7
Covered by administrative records[2]	E9	38	.2	1.6	.1	.2	.9	2.4	16.2	18.7	.2	4.0

Note: For qualifications of data, see footnotes on table 1a. Data shown as a (D) are included in underscored figures above.

[1]Payroll and sales data for some small single unit companies with up to 20 employees (cutoff varied by industry) were obtained from administrative records of other Government agencies rather than from census report forms. These data were then used in conjunction with industry averages to estimate the items shown for these small establishments. This technique was also used for a small number of other establishments whose reports were not received at the time data were tabulated. The following symbols are shown for those employment-size classes where estimated data based on administrative-record data account for 10 percent or more of figures shown: E1—10 to 19 percent; E2—20 to 29 percent; E3—30 to39 percent; E4—40 to 49 percent; E5—50 to 59 percent; E6—60 to 69 percent; E7—70 to 79 percent; E8—80 to 89 percent; E9—90 percent or more.

[2]Report forms were not mailed to small single unit companies with up to 20 employees (cutoff varied by industry). Payroll and sales data for 1987 were obtained from administrative records supplied by other agencies of the Federal Government. Those data were then used in conjunction with industry averages to estimate the items shown. Data are also included in respective employment-size classes shown.

Table 5a. Industry Statistics by Industry and Primary Product Class Specialization: 1987

[Table presents selected statistics for establishments according to their degree of specialization in products primary to their industry. Measures of plant specialization shown are (1) industry specialization: ratio of primary product shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment; and (2) product class specialization: ratio of largest primary product class shipments to total product shipments (primary plus secondary, excluding miscellaneous receipts) for the establishment. See appendix for method of computing ratios. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry or product class code	Industry or primary product class	All establishments (number)	All employees		Production workers			Value added by manufacture (million dollars)	Cost of materials (million dollars)	Value of shipments (million dollars)	New capital expenditures (million dollars)
			Number (1,000)	Payroll (million dollars)	Number (1,000)	Hours (millions)	Wages (million dollars)				
2111	**Cigarettes:**										
	All establishments in industry	12	32.0	1 233.7	23.6	42.9	860.3	12 970.7	4 396.6	17 372.0	410.2
2121	**Cigars:**										
	All establishments in industry	20	2.5	35.7	2.0	4.0	26.2	106.3	65.5	191.5	5.0
2131	**Chewing and smoking tobacco:**										
	All establishments in industry	29	3.3	77.2	2.2	4.3	46.2	791.9	321.5	1 114.3	8.9
2141	**Tobacco stemming and redrying:**										
	All establishments in industry	76	6.9	139.0	4.8	10.2	77.7	394.9	1 687.0	2 079.2	40.2
	Establishments with this product class primary:										
21411	Unstemmed leaf tobacco redried before packing	3	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
21412	Tobacco, stemmed	27	5.1	93.9	3.5	7.6	48.4	288.8	1 546.0	1 836.6	26.2
21413	Reconstituted tobacco	5	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Note: For qualifications of data, see footnotes on table 1a.

Table 5b. Industry-Product Analysis—Value of Production and Primary Product Production and Specialization and Coverage Ratios for the Industry: 1987 and Earlier Census Years

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently, establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio col. B ÷ col. B + C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio col. B ÷ col. F (percent)
		A	B	C	D	E	F	G	H	I
2111	Cigarettes 1987	17 372.0	(D)	(D)	(D)	(D)	16 746.2	(D)	(D)	(D)
	1982	12 126.8	(D)	(D)	(D)	97	11 433.5	(D)	(D)	(D)
	1977	6 377.4	(D)	(D)	(D)	97	6 098.2	(D)	(D)	99

See footnotes at end of table.

Table 5b. Industry-Product Analysis—Value of Production and Primary Product Production and Specialization and Coverage Ratios for the Industry: 1987 and Earlier Census Years—Con.

[An establishment is assigned to an industry based on shipment values of products representing largest amount considered primary to an industry. Frequently establishment shipments comprise mixtures of products assigned to an industry (primary), those considered primary to other industries (secondary), and receipts for activities such as merchandising or contract work. Columns A-D show this product pattern for an industry, and column E shows primary product specialization ratio. The extent to which an industry's primary products are shipped by establishments classified in and out of an industry is shown in columns F-H and coverage ratio is shown in column I. For meaning of abbreviations and symbols, see introductory text. For explanation of terms, see appendixes]

Industry and product group code	Industry and census year	Value of shipments					Value of primary product shipments			
		Total (million dollars)	Primary products (million dollars)	Secondary products (million dollars)	Miscellaneous receipts (million dollars)	Primary product specialization ratio col. B ÷ col. B+C (percent)	Total made in all industries (million dollars)	Made in this industry (million dollars)	Made in other industries (million dollars)	Coverage ratio col. B ÷ col. F (percent)
		A	B	C	D	E	F	G	H	I
2121	Cigars									
	1987	191.5	182.4	(D)	(D)	(D)	204.1	182.4	21.7	89
	1982	253.7	241.9	1	11.7	99	262.0	241.9	20.0	92
	1977	242.7	234.8	(D)	(D)	(D)	256.2	234.8	21.4	92
2131	Chewing and smoking tobacco									
	1987	1 114.3	(D)	(D)	(D)	(D)	1 031.8	(D)	(D)	(D)
	1982	665.4	613.7	(D)	(D)	(D)	731.1	613.7	117.4	84
	1977	354.3	302.9	8.9	42.5	97	401.4	302.9	98.5	75
2141	Tobacco stemming and redrying									
	1987	2 079.2	(D)	(D)	248.5	(D)	2 155.2	(D)	(D)	(D)
	1982	3 015.4	(D)	(D)	326.8	(D)	2 946.0	(D)	(D)	(D)
	1977	2 076.2	1 660.9	(D)	(D)	(D)	1 769.1	1 661.0	108.1	94

Table 6a. Product and Product Classes—Quantity and Value of Production by All Producers: 1987 and 1982

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with production of $100,000 or more	Total production[1]		Number of companies with production of $100,000 or more	Total production[1]	
			Quantity[2]	Value[2] (million dollars)		Quantity[2]	Value[2] (million dollars)
2111- —	**CIGARETTES, INCLUDING NONTOBACCO CIGARETTES**						
	Total	**(NA)**	**(X)**	**16 746.2**	**9**	**(X)**	**11 433.5**
21110 —	Cigarettes:						
	Filter tips:						
21110 13	80 millimeters long or less (millions)	5	70 931	1 760.5	4	(D)	(D)
21110 16	85 millimeters long (do.)	7	284 529	7 216.2	8	319 444	5 544.4
21110 18	100 millimeters long or more (do.)	7	250 326	6 977.3	8	231 344	3 959.7
21110 55	Nonfilter tips (do.)	7	29 966	792.2	7	(D)	(D)
21110 00	Cigarettes, n.s.k., typically for establishments with 5 employees or more (see note)	-	(X)	-	-	(X)	-
21110 02	Cigarettes, n.s.k., typically for establishments with less than 5 employees (see note)	-	(X)	-	-	(X)	-
2121- —	**CIGARS**						
	Total	**(NA)**	**(X)**	**204.1**	**(NA)**	**(X)**	**262.0**
21210 —	Cigars:						
21210 13	Little cigars, cigarette-size, weighing less than 3 lb per 1,000 cigars (millions)	5	661.9	12.3	5	1 297.4	22.6
21210 21	Cigarillos weighing 3 to 10 lb per 1,000 cigars (do.)	6	478.9	32.7	6	1 434.2	72.3
21210 31	Cigars weighing more than 10 lb per 1,000 cigars (do.)	14	1 579.5	154.6	23	2 004.3	160.9
21210 00	Cigars, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	4.5	(NA)	(X)	3.5
21210 02	Cigars, n.s.k., typically for establishments with less than 5 employees (see note)	-	(X)	-	(NA)	(X)	2.8
2131- —	**CHEWING AND SMOKING TOBACCO**						
	Total	**(NA)**	**(X)**	**1 031.8**	**(NA)**	**(X)**	**731.1**
21310 —	Chewing and smoking tobacco:						
21310 08	Smoking tobacco (mil lb.)	10	28.5	135.5	12	36.1	129.2
21310 13	Loose leaf chewing tobacco (do.)	7	79.1	252.0	5	78.1	203.9
21310 98	All other chewing tobacco and snuff, including fine cut chewing, twist chewing, plug chewing, snuff flour, etc. (do.)	8	95.5	638.5	8	73.8	396.2
21310 00	Chewing and smoking tobacco, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	5.8	(NA)	(X)	1.8
21310 02	Chewing and smoking tobacco, n.s.k., typically for establishments with less than 5 employees (see note)						

See footnotes at end of table.

Table 6a. Product and Product Classes—Quantity and Value of Production by All Producers: 1987 and 1982—Con.

[Includes quantity and value of products of this industry produced by (1) establishments classified in this industry (primary) and (2) establishments classified in other industries (secondary). For comparability of product classes and product codes between 1982 and 1987, see appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 product code	Product	1987			1982		
		Number of companies with production of $100,000 or more	Total production[1]		Number of companies with production of $100,000 or more	Total production[1]	
			Quantity[2]	Value[2] (million dollars)		Quantity[2]	Value[2] (million dollars)
2141- —	**TOBACCO STEMMING AND REDRYING**						
	Total	**(NA)**	**(X)**	**2 155.2**	**(NA)**	**(X)**	**2 946.0**
21411 —	Unstemmed leaf tobacco redried before packing:						
21411 00	Unstemmed leaf tobacco redried before packing, including interplant transfers ..... mil lb	9	49.8	103.2	11	41.5	98.4
21412 —	Tobacco stemmed	(NA)	(X)	1 889.1	(NA)	(X)	2 733.0
	Packaged for sale as such:						
21412 11	Aged leaf ..... mil lb	5	126.2	233.4	4	(D)	(D)
21412 15	Leaf, not aged ..... do	10	428.7	920.8	9	(D)	(D)
21412 27	Packed for use in own manufacturing (interplant transfers), including both aged and not aged leaf ..... do	13	338.8	734.9	9	648.1	1 383.2
21412 00	Stemmed tobacco, n.s.k.	-	(X)	-	(NA)	(X)	-
21413 —	Reconstituted tobacco:						
21413 00	Reconstituted tobacco (processed sheet and homogenized) ..... mil lb	5	168.5	137.9	8	191.3	111.4
21410 —	Stemmed and redried tobacco, n.s.k.	(NA)	(X)	25.0	(NA)	(X)	3.2
21410 00	Stemmed and redried tobacco, n.s.k., typically for establishments with 5 employees or more (see note)	(NA)	(X)	7.0	(NA)	(X)	(Z)
21410 02	Stemmed and redried tobacco, n.s.k., typically for establishments with less than 5 employees (see note)	(NA)	(X)	18.0	(NA)	(X)	3.2

Note: In 1987 Census of Manufactures, data for establishments of small single unit companies with up to 20 employees were estimated from administrative-record data rather than data actually collected from respondents. Employment cutoffs used for administrative records for each industry and shipments figures are included in code ending with "002". In both 1987 and 1982 Censuses of Manufactures, products not completely identified on standard forms were coded in appropriate product class (five-digit) followed by "00" or to appropriate product group code (four-digit) followed by "000".

[1]Data reported by all producers, not just those with shipments of $100,000 or more.

[2]For some establishments, data have been estimated from central unit values which are based on quantity-value relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

Table 6b. Product Classes—Value of Production by All Producers for Specified States: 1987 and 1982

[Million dollars. Product classes covered are those that are economically significant and whose production is geographically dispersed, provided dispersion is not approximated by data in table 2. Also, product classes are not shown if they are miscellaneous or "not specified by type" classes. Statistics for some States are withheld because they are either less than $2 million in product class shipments or they disclose data for individual companies in 1987. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

Product class and geographic area	1987 value of product shipments	1982 value of product shipments
21411, UNSTEMMED LEAF TOBACCO REDRIED BEFORE PACKING		
United States	**103.2**	**98.4**
21412, TOBACCO, STEMMED		
United States	**1 889.1**	**2 733.0**
Kentucky	33.5	510.5
North Carolina	1 227.4	1 542.4
Virginia	529.7	607.6
21413, RECONSTITUTED TOBACCO		
United States	**137.9**	**111.4**

Table 6c. Historical Statistics for Product Classes—Value Produced by All Producers: 1987 and Earlier Years

[Million dollars. For meaning of abbreviations and symbols, see introductory text. For comparability of product classes and product codes between 1982 and 1987 and explanation of terms, see appendixes]

1987 product code	Product class	1987	1986[1]	1985[1]	1984[1]	1983[1]	1982	1977	1972
2111-	**Cigarettes, including nontobacco cigarettes**	**16 746.2**	**15 028.0**	**14 065.8**	**13 123.2**	**11 941.4**	**11 433.5**	**6 098.2**	**3 589.4**
21110	Cigarettes	16 746.2	15 028.0	14 065.8	13 123.2	11 941.4	11 433.5	6 098.2	3 589.4
2121-	**Cigars**	**204.1**	**259.3**	**263.3**	**269.5**	**307.3**	**290.0**	**256.2**	**357.5**
21210	Cigars	204.1	259.3	263.3	269.5	307.3	290.0	256.2	357.5
2131-	**Chewing and smoking tobacco**	**1 031.8**	**1 010.4**	**985.7**	**874.5**	**748.7**	**731.1**	**401.4**	**257.5**
21310	Chewing and smoking tobacco	1 031.8	1 010.4	985.7	874.5	748.7	731.1	401.4	257.5
2141-	**Tobacco stemming and redrying**	**2 155.2**	**2 172.4**	**2 529.0**	**2 538.8**	**2 545.6**	**2 946.0**	**1 769.1**	**1 335.8**
21411	Unstemmed leaf tobacco redried before packing	103.2	58.6	99.7	128.0	137.4	98.4	170.7	122.2
21412	Tobacco, stemmed	1 889.1	1 950.0	2 247.0	2 258.5	2 295.3	2 733.0	1 531.7	1 194.3
21413	Reconstituted tobacco	137.9	126.5	120.5	116.8	103.5	111.4	50.8	19.3
21410	Stemmed and redried tobacco, n.s.k.	25.0	31.4	61.7	35.6	9.4	3.2	15.9	-

[1]Figures are estimates derived from a representative sample of manufacturing establishments. Standard errors associated with estimates are published in annual survey of manufactures publications for this period.

Table 7. Materials Consumed by Kind: 1987 and 1982

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2111, CIGARETTES				
	Materials, containers, and supplies	**(X)**	**4 036.1**	**(X)**	**3 673.7**
013211	Unstemmed leaf tobacco, including green tobacco not packed, mil lb	-	-	-	-
214111	Unstemmed leaf tobacco, redried and packed, do	(D)	(D)	(D)	(D)
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco, do	1 115.4	2 480.0	1 290.1	2 255.9
214124	Reconstituted tobacco (processed sheet and homogenized), do	265.0	225.3	67.9	39.1
260012	Paper and paperboard products, including shipping containers, setup and folding cartons (excluding paperback foil and cigarette)	(X)	992.5	(X)	582.7
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes, including cellophane	(X)	(D)	(X)	(D)
970099	All other materials, containers, and supplies consumed	(X)	170.6	(X)	544.0
971000	Materials, containers, and supplies, n.s.k.[2]	(X)	(D)	(X)	-
	INDUSTRY 2121, CIGARS				
	Materials, containers, and supplies	**(X)**	**80.6**	**(X)**	**107.7**
013211	Unstemmed leaf tobacco, including green tobacco not packed, mil lb	(D)	(D)	2.1	5.1
214111	Unstemmed leaf tobacco, redried and packed, do	4.9	10.2	4.1	14.4
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco, do	24.7	36.6	28.5	44.7
214124	Reconstituted tobacco (processed sheet and homogenized), do	3.0	7.8	6.4	13.0
260012	Paper and paperboard products, including shipping containers, setup and folding cartons (excluding paperback foil and cigarette)	(X)	8.8	(X)	21.3
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes, including cellophane	(X)	(D)	(X)	3.4
970099	All other materials, containers, and supplies consumed	(X)	10.5	(X)	3.1
971000	Materials, containers, and supplies, n.s.k.[2]	(X)	(D)	(X)	2.7
	INDUSTRY 2131, CHEWING AND SMOKING TOBACCO				
	Materials, containers, and supplies	**(X)**	**269.4**	**(X)**	**211.2**
013211	Unstemmed leaf tobacco, including green tobacco not packed, mil lb				
214111	Unstemmed leaf tobacco, redried and packed, do	113.3	160.6	134.0	144.8
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco, do				
260012	Paper and paperboard products, including shipping containers, setup and folding cartons (excluding paperback foil and cigarette)	(X)	21.9	(X)	16.5
308007	Plastics products consumed in the form of sheets, rods, tubes, and other shapes, including cellophane	(X)	14.5	(X)	1.3
970099	All other materials, containers, and supplies consumed	(X)	70.9	(X)	46.9
971000	Materials, containers, and supplies, n.s.k.[2]	(X)	1.5	(X)	1.7

See footnotes at end of table.

Table 7. **Materials Consumed by Kind: 1987 and 1982**—Con.

[Includes quantity and cost of materials consumed or put into production by establishments classified only in this industry. For further explanation, see Cost of Materials in appendixes. For meaning of abbreviations and symbols, see introductory text]

1987 material code	Material	1987		1982	
		Quantity[1]	Delivered cost (million dollars)	Quantity[1]	Delivered cost (million dollars)
	INDUSTRY 2141, TOBACCO STEMMING AND REDRYING				
	Materials, containers, and supplies	**(X)**	**1 461.7**	**(X)**	**2 452.9**
013211	Unstemmed leaf tobacco, including green tobacco not packed ..... mil lb..	464.5	835.6	999.3	1 807.6
214111	Unstemmed leaf tobacco, redried and packed ..... do..	103.1	172.9	38.9	74.1
214123	Stemmed leaf tobacco, excluding processed sheet and homogenized tobacco ..... do..	244.4	387.3	267.3	495.0
970099	All other materials, containers, and supplies consumed	(X)	34.7	(X)	25.1
971000	Materials, containers, and supplies, n.s.k.[2]	(X)	31.2	(X)	51.1

[1]For some establishments, data have been estimated from central unit values which are based on quantity-cost relationships of reported data. The following symbols are used when percentage of each quantity figure estimated in this manner equals or exceeds 10 percent of published figure: * 10 to 19 percent estimated; ** 20 to 29 percent estimated. If 30 percent or more is estimated, figure is replaced by (S).

[2]Total cost of materials of establishments that did not report detailed materials data, including establishments that were not mailed a form.

APPENDIX A.
Explanation of Terms

This appendix is in two sections. Section 1 includes items requested of all establishments mailed census of manufactures forms including annual survey of manufactures (ASM) forms. Note that this section also includes several items (number of establishments and companies, value added, classes of products, and specialization and coverage ratios) not included on the report forms but derived from information collected on the forms. Section 2 covers supplementary items requested only from establishments included in the ASM sample. Results of the supplementary ASM inquiries are included in table 3c of this report.

SECTION 1. ITEMS COLLECTED OR DERIVED BASED ON ALL CENSUS OF MANUFACTURES (INCLUDING ASM) REPORT FORMS

Number of establishments and companies—As discussed in the Introduction, a separate report was required for each manufacturing establishment (plant) with one employee or more. An establishment is defined as a single physical location where manufacturing is performed. A company, on the other hand, is defined as a business organization consisting of one establishment or more under common ownership or control.

If the company operated at different physical locations, even if the individual locations were producing the same line of goods, a separate report was requested for each location. If the company operated in two or more distinct lines of manufacturing at the same location, a separate report was requested for each activity.

An establishment not in operation for any portion of the year was requested to return the report form with the proper notation in the "Operational Status" section of the form. In addition, the establishment was requested to report data on any employees, capital expenditures, inventories, or shipments from inventories during the year.

In this report, data are shown for establishments in operation at any time during the year. A comparison with the number of establishments in operation at the end of the year will be provided in the Introduction of the General Summary subject report.

Employment and related items—The report forms requested separate information on production workers for a specific payroll period within each quarter of the year and on other employees as of the payroll period which included the 12th of March.

All employees—This item includes all full-time and part-time employees on the payrolls of operating manufacturing establishments during any part of the pay period which included the 12th of the months specified on the report form. Included are all persons on paid sick leave, paid holidays, and paid vacations during these pay periods. Officers of corporations are included as employees; proprietors and partners of unincorporated firms are excluded. The "all employees" number is the average number of production workers plus the number of other employees in mid-March. The number of production workers is the average for the payroll periods including the 12th of March, May, August, and November.

Production workers—This item includes workers (up through the line-supervisor level) engaged in fabricating, processing, assembling, inspecting, receiving, storing, handling, packing, warehousing, shipping (but not delivering), maintenance, repair, janitorial and guard services, product development, auxiliary production for plant's own use (e.g., power plant), recordkeeping, and other services closely associated with these production operations at the establishment covered by the report. Employees above the working-supervisor level are excluded from this item.

All other employees—This item covers nonproduction employees of the manufacturing establishment including those engaged in factory supervision above the line-supervisor level. It includes sales (including driver salespersons), sales delivery (highway truck drivers and their helpers), advertising, credit, collection, installation and servicing of own products, clerical and routine office function, executive, purchasing, financing, legal, personnel (including cafeteria, medical, etc.), professional, and technical employees. Also included are employees on the payroll of the manufacturing establishment engaged in the construction of major additions or alterations to the plant and utilized as a separate work force.

In addition to reports sent to operating manufacturing establishments, information on employment during the payroll period which included March 12 and annual payrolls also was requested of auxiliary units (e.g., administrative offices, warehouses, and research and development laboratories) of multiestablishment companies. However, these figures are not included in the totals for individual

industries shown in this report. They are included in the general summary and geographic area reports as a separate category.

Payroll—This item includes the gross earnings of all employees on the payroll of operating manufacturing establishments paid in the calendar year 1987. Respondents were told they could follow the definition of payrolls used for calculating the Federal withholding tax. It includes all forms of compensation, such as salaries, wages, commissions, dismissal pay, bonuses, vacation and sick leave pay, and compensation in kind, prior to such deductions as employees' Social Security contributions, withholding taxes, group insurance, union dues, and savings bonds. The total includes salaries of officers of corporations; it excludes payments to proprietors or partners of unincorporated concerns. Also excluded are payments to members of Armed Forces and pensioners carried on the active payroll of manufacturing establishments.

The census definition of payrolls is identical to that recommended to all Federal statistical agencies by the Office of Management and Budget. It should be noted that this definition does not include employers' Social Security contributions or other nonpayroll labor costs, such as employees' pension plans, group insurance premiums, and workers' compensation.

The ASM provides esumates of employers' supplemental labor costs, both those required by Federal and State laws and those incurred voluntarily or as part of collective bargaining agreements. (Supplemental labor costs are explained later in this appendix.)

As in the case of employment figures, the payrolls of separate auxiliary units of multiestablishment companies are not included in the totals for individual industries or industry groups.

Production-worker hours—This item covers hours worked or paid for at the plant, including actual overtime hours (not straight-time equivalent hours). It excludes hours paid for vacations, holidays, or sick leave.

Cost of materials—This term refers to direct charges actually paid or payable for items consumed or put into production during the year, including freight charges and other direct charges incurred by the establishment in acquiring these materials. It includes the cost of materials or fuel consumed, whether purchased by the individual establishment from other companies, transferred to it from other establishments of the same company, or withdrawn from inventory during the year.

The important components of this cost item are (1) all raw materials, semifinished goods, parts, containers, scrap, and supplies put into production or used as operating supplies and for repair and maintenance during the year, (2) electric energy purchased, (3) fuels consumed for heat, power, or the generation of electricity, (4) work done by others on materials or parts furnished by manufacturing establishments (contract work), and (5) products bought and resold in the same condition. (See discussion of duplication of data below.)

Specific materials consumed—In addition to the total cost of materials, which every establishment was required to report, information also was collected for most manufacturing industries on the consumption of major materials used in manufacturing. The inquiries were restricted to those materials which were important parts of the cost of production in a particular industry and for which cost information was available from manufacturers' records. Information on the establishments consuming less than a specified amount (usually $10,000) of a specific material were not requested to report consumption of that material separately. Also, the cost of materials for the small establishments for which either administrative records or short forms were used was imputed as "not specified by kind." (See the introduction for the importance of administrative records in the industry.)

Value of shipments—This item covers the received or receivable net selling values, f.o.b. plant (exclusive of freight and taxes), of all products shipped, both primary and secondary, as well as all miscellaneous receipts, such as receipts for contract work performed for others, installation and repair, sales of scrap, and sales of products bought and resold without further processing. Included are all items made by or for the establishments from materials owned by it, whether sold, transferred to other plants of the same company, or shipped on consignment. The net selling value of products made in one plant on a contract basis from materials owned by another was reported by the plant providing the materials.

In the case of multiunit companies, the manufacturer was requested to report the value of products transferred to other establishments of the same company at full economic or commercial value, including not only the direct cost of production but also a reasonable proportion of "all other costs" (including company overhead) and profit. (See discussion of duplication of data below.)

Individual products—As in previous censuses, data were collected for most industries on the quantity and value of individual products shipped. In the 1987 census program, information was collected on the output of approximately 11,000 individual product items. The term "product", as used in the census of manufactures, represents the finest level of detail for which output information was requested. Consequently, it is not necessarily synonymous with the term "product" as used in the marketing sense. In some cases, it may be much more detailed and, in other cases, it is more aggregative. For example, "pharmaceutical preparations" was distributed into over 100 terms; whereas, "motor gasoline" was reported as a single item.

Approximately 6,600 of the product items were listed separately on the 1987 census report forms. Data for

about 4,400 products were obtained in the monthly, quarterly, or annual surveys comprising the Current Industrial Reports series of the Census Bureau. Totals for the year 1987 for these items, as derived from the commodity surveys, are shown in the "products shipped" table (table 6a–2).

The list of products for which separate information was collected was prepared after consultation with industry and government representatives. Comparability with previous figures was given considerable weight in the selection of product categories so that comparable 1982 information is presented for most products.

Typically, both quantity and value of shipments information were collected. However, if quantity was not significant or could not be reported by manufacturers, only value of shipments was collected.

Shipments include both commercial shipments and transfers of products to other plants of the same company. For industries in which a considerable portion of the total shipments is transferred to other plants of the same company, separate information on interplant transfers also was collected. Moreover, for products that are used to a large degree within the same establishment as materials or components in the fabrication of other products, total production and often consumption of the item within the plant was collected. Typically, the information on production also was collected for products for which there are significant differences between total production and shipments in a given year because of wide fluctuations in finished goods inventories. Other measures of output of products with long production cycles were used as appropriate and feasible.

Classes of products—To summarize the product information, the separate products were aggregated into classes of products that, in turn, were grouped into all primary products of each industry. The code structure used is a seven-digit number for the individual product, a five-digit number for the class of product, and a four-digit number for the total primary products in an industry. (See Introduction, Industry Classification of Establishments, for application of the coding structure to the assignment of SIC codes for establishments.)

In the 1987 census, the 11,000 products were grouped into approximately 1,500 separate classes on the basis of general similarity of manufacturing processes, types of materials used, and the like. However, the grouping of products was affected by the economic significance of the class and, in some cases, dissimilar products were grouped because the products were not sufficiently significant to warrant separate classes.

Duplication in cost of materials and value of shipments— The aggregate of the cost of materials and value of shipments figures for industry groups and for all manufacturing industries includes large amounts of duplication since the products of some industries are used as materials by others. This duplication results, in part, from the addition of related industries representing successive stages in the production of a finished manufactured product. Examples are the addition of flour mills to bakeries in the food group and the addition of pulp mills to paper mills in the paper and allied products group of industries. Estimates of the overall extent of this duplication indicate that the value of manufactured products exclusive of such duplication (the value of finished manufactures) tends to approximate two-thirds of the total value of products reported in the annual survey.

Duplication of products within individual industries is significant within a number of industry groups, e.g., machinery and transportation industries. These industries frequently include complete machinery and their parts. In this case, the parts made for original equipment are materials consumed for assembly plants in the same industry.

Even when no significant amount of duplication is involved, value of shipments figures are deficient as measures of the relative economic importance of individual manufacturing industries or geographic areas because of the wide variation in ratio of materials, labor, and other processing costs of value of shipments, both among industries and within the same industry.

Before 1962, cost of materials and value of shipments were not published for some industries which included considerable duplication. Since then, these data have been published for all industries at the United States level and beginning in 1964, for all geographic levels.

Value added by manufacture—This measure of manufacturing activity is derived by subtracting the cost of materials, supplies, containers, fuel, purchased electricity, and contract work from the value of shipments (products manufactured plus receipts for services rendered). The result of this calculation is adjusted by the addition of value added by merchandising operations (i.e., the difference between the sales value and the cost of merchandise sold without further manufacture, processing, or assembly) plus the net change in finished goods and work-in-process between the beginning- and end-of-year inventories.

For those industries where value of production is collected instead of value of shipments (see footnote in table 1a), value added is adjusted only for the change in work-in-process inventories between the beginning and end of year. For those industries where value of work done is collected, the value added does not include an adjustment for the change in finished goods or work-in-process inventories.

"Value added" avoids the duplication in the figure for value of shipments that results from the use of products of some establishments as materials by others. Value added is considered to be the best value measure available for comparing the relative economic importance of manufacturing among industries and geographic areas.

New and used capital expenditures—For establishments in operation and any known plants under construction, manufacturers were asked to report their new expenditures for (1) permanent additions and major alterations to

manufacturing establishments, and (2) machinery and equipment used for replacement and additions to plant capacity if they were of the type for which depreciation accounts were ordinarily maintained.

The totals for new expenditures include expenditures leased from nonmanufacturing concerns through capital leases, new facilities owned by the Federal Government but operated under contract by private companies, and plant and equipment furnished to the manufacturer by communities and nonprofit organizations. Also excluded are expenditures for used plant and equipment (although reported in the census), expenditures for land, and cost of maintenance and repairs charged as current operating expenses.

Manufacturers also were requested to report the value of all used buildings and equipment purchased during the year at the purchase price. For any equipment or structure transferred for the use of the reporting establishment by the parent company or one of its subsidiaries, the value at which it was transferred to the establishment was to be reported. Furthermore, if the establishment changed ownership during the year, the cost of the fixed assets (building and equipment) was to be reported under used capital expenditures.

Total expenditures for used plant and equipment is a universe figure; it is collected on all census forms. However, the breakdown of this figure between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. The data for total new capital expenditures, new building expenditures, and new machinery expenditures, as well as the data for total used expenditures, are shown in table 3b.

End-of-year inventories—Respondents were asked to report their 1986 and 1987 end-of-year inventories at cost or market. Effective with the 1982 Economic Censuses, this change to a uniform instruction for reporting inventories was introduced for all sector reports. Prior to 1982, respondents were permitted to value inventories using any generally accepted accounting method (FIFO, LIFO, market, to name a few). In 1982, LIFO users were asked to first report inventory values prior to the LIFO adjustment and then to report the LIFO reserve and the LIFO value after adjustment for the reserve.

Because of this change in reporting instructions, the 1982 through 1987 data for inventories and value added by manufacture included in the tables of this report are not comparable to the prior-year data shown in table 1a of this report and in historical census of manufactures and annual survey of manufactures publications.

In using inventory data by stage of fabrication for "all industries" and at the two-digit industry level, it should be noted that an item treated as a finished product by an establishment in one industry may be reported as a raw material by another establishment in a different industry. For example, the finished-product inventories of a steel mill would be reported as raw materials by a stamping plant. Such differences are present in the inventory figures by stage of fabrication shown for individual industries, industry groups, and "all manufacturing", which are aggregates of figures reported by establishments in specified industries.

Specialization and coverage ratios—These items are not collected on the report forms but are derived from the data shown in table 5b. An establishment is classified in a particular industry if its shipments of primary products of that industry exceed in value its shipments of the products of any other single industry.

As noted in the introduction, an establishment's shipments include those products assigned to an industry (primary products), those considered primary to other industries (secondary products), and receipts for miscellaneous activities (merchandising, contract work, resales, etc.). Specialization and coverage ratios have been developed to measure the relationship of primary product shipments to the data on shipments for the industry shown in tables 1a through 5a and data on product shipments shown in tables 6a through 6c.

Specialization ratio represents the ratio of primary product shipments to total product shipments (primary and secondary, excluding miscellaneous receipts) for the establishments classified in the industry.

Coverage ratio represents the ratio of primary products shipped by the establishments classified in the industry to the total shipments of such products that are shipped by all manufacturing establishments wherever classified.

SECTION 2. ITEMS COLLECTED ONLY ON ASM REPORT FORMS

The following items were collected only from establishments included in the ASM sample:

1. **Supplemental labor costs**—Supplemental labor costs are divided into legally required expenditures and payments for voluntary programs. The legally required portion consists primarily of Federal old age and survivors' insurance, unemployment compensation, and workers' compensation. Payments for voluntary programs include all programs not specifically required by legislation whether they were employer initiated or the result of collective bargaining. They include the employer portion of such plans as insurance premiums, premiums for supplemental accident and sickness insurance, pension plans, supplemental unemployment compensation, welfare plans, stock purchase plans on which the employer payment is not subject to withholding tax, and deferred profit-sharing plans.

They exclude such items as company-operated cafeterias, in-plant medical services, free parking lots, discounts on employee purchases, and uniforms and work clothing for employees. While the excluded items do benefit employees and all or part of their cost generally is similar to the items covered in the ASM labor costs statistics, accounting records generally do not provide reliable figures on net employee benefits of these types.

2. **Retirements of depreciable assets**—Included in this item is the gross value of assets sold, retired, scrapped, destroyed, etc., during 1987. When a complete operation or establishment changed ownership, the respondent was instructed to report the value of the assets sold at the original cost as recorded in the books of the seller. The respondent also was requested to report retirements of equipment or structures owned by a parent company that the establishment was using as if it were a tenant.

3. **Depreciation charges for fixed assets**—This item includes depreciation and amortization charged during the year against assets. Depreciation charged against fixed assets acquired since the beginning of the year and against assets sold or retired during the year are components of this category. Respondents were requested to make certain that they did not report accumulated depreciation.

4. **Rental payments**—Total rental payments is collected on all census forms. However, the breakdown between rental payments for buildings and other structures and rental payments for machinery and equipment is collected only on the ASM forms. This item includes rental payments for the use of all items for which depreciation reserves would be maintained if they were owned by the establishment, e.g., structures and buildings, and production, office, and transportation equipment. Excluded are royalties and other payments for the use of intangibles and depletable assets, and land rents where separable.

   When an establishment of a multiestablishment company was charged rent by another part of the same company for the use of assets owned by the company, it was instructed to exclude that cost from rental payments. However, the book value (original cost) of these company-owned assets was to be reported as assets of the establishment at the end of the year.

   If there were assets at an establishment rented from another company and the rents were paid centrally by the head office of the establishment, the company was instructed to report these rental payments as if they were paid directly by the establishment.

5. **Depreciable assets**—Total value of gross depreciable assets is collected on all census forms. However, the detail for depreciable assets is collected only on the ASM forms. The data encompass all fixed depreciable assets on the books of establishments at the beginning and end of the year. The values shown (book value) represent the actual cost of assets at the time they were acquired, including all costs incurred in making the assets usable (such as transportation and installation). Included are all buildings, structures, machinery, and equipment (production, office, and transportation equipment) for which depreciation reserves are maintained. Excluded are nondepreciable capital assets, including inventories and intangible assets, such as timber and mineral rights.

   The definition of fixed depreciable assets is consistent with the definition of capital expenditures. For example, expenditures include actual capital outlays during the year, rather than the final value of equipment put in place and buildings completed during the year. Accordingly, the value of assets at the end of the year includes the value of construction in progress. In addition, respondents were requested to make certain that assets at the beginning of the year plus new and used capital expenditures, less retirements, equalled assets at the end of the year.

6. **New and used capital expenditures**—The data for total new capital expenditures, new building expenditures, new machinery expenditures, and total used capital expenditures are collected on all census forms. However, the breakdown between expenditures for used buildings and other structures and expenditures for used machinery and equipment is collected only on the ASM form. (See further explanation on capital expenditures in section 1.)

7. **Quantity of electric energy consumed for heat and power**—Data on the cost of purchased electric energy were collected on all census forms. However, data on the quantity of purchased electric energy were collected only on the ASM forms. In addition, information was collected on the quantity of electric energy generated by the establishment and the quantity of electric energy sold or transferred to other plants of the same company.

8. **Breakdown of new capital expenditures for machinery and equipment**—ASM establishments were requested to separate their capital expenditures for new machinery and equipment into (1) automobiles, trucks, etc., for highway use, (2) computers and peripheral data processing equipment, and (3) all other.

   The category "automobiles, trucks, etc., for highway use" is intended to measure expenditures for vehicles designed for highway use that were acquired through a purchase or lease-purchase agreement.

Vehicles normally operating off public highways (vehicles specifically designed to transport materials, property, or equipment on mining, construction, logging, and petroleum development projects) are excluded from this item.

9. **Foreign content of cost of materials**—Establishments included in the ASM sample panel were requested to provide information on foreign-made materials purchased or transferred from foreign sources. This includes materials acquired from a central warehouse or other domestic establishment of the same company but made in an operation outside of the 50 States, District of Columbia, Puerto Rico, or U.S. territories.

10. **Cost of purchased services**—ASM establishments were requested to provide information on the cost of purchased services for the repair of buildings and other structures, the repair of machinery, and communication services. Included in the cost of purchased services for the repair of buildings and machinery are payments made for all maintenance and repair work on buildings and equipment, such as painting, roof repairs, replacing parts, and overhauling equipment. Such payments made to other establishments of the same company and for repair and maintenance of any leased property also are included. Extensive repairs or reconstruction that were capitalized are considered capital expenditures for used buildings and machinery and are, therefore, excluded from this item. Repair and maintenance costs provided by an owner as part of a rental contract or incurred directly by an establishment in using its own work force also are excluded.

Three basic approaches were utilized to produce these statistics.

1. For items 1 through 6, data were estimated (imputed) for all non-ASM establishments using the available data in the establishment record and industry-based parameters. The statistics were then generated by simply tabulating all census records including the imputed value for non-ASM establishments and the unweighted value for ASM establishments. Separate imputation rates were developed and are shown in the table. For quantity of purchased electricity for heat and power (item 7), a similar procedure was used; however, the imputation parameters were geographically-based instead of industry-based. For quantities of generated less sold electricity, no imputation was performed for non-ASM establishments. The estimates for these items are simply tabulations of unweighted ASM values.

   Since the published statistics for these items were developed from the complete census universe and not just the ASM establishments, there are no sampling variances associated with these statistics. However, there is an unknown level of bias for each of the items due to the imputation of the non-ASM establishments. This bias is felt to be small due to the strong correlation between the items being imputed and the collected items that were used to generate the impute values.

2. For items 8 and 9, the estimates were developed using a ratio estimation methodology. For item 8, an estimate of the breakout of new capital expenditures for machinery and equipment into the three categories was made from ASM establishments reporting these categories. The estimated proportions were then applied to the corresponding Census value for new capital expenditures for machinery and equipment to produce the estimates.

   The estimates for item 9, foreign content of cost of materials, were developed in a similar manner based on costs of parts, supplies, and components (item 5a) as the control total for the three categories.

   For items 8 and 9, an adjustment ratio of the following form was computed.

$$Rj = \frac{NMc}{TMEasm}$$

   where:

   NMc = the census value of new capital expenditures for machinery and equipment

   TMEasm = the weighted ASM value of new capital expenditures for machinery and equipment from reporters of the detailed breakout data

3. For item 10, cost of purchased services, the estimates were made by simply tabulating weighted data for all the ASM records that reported the item. A response coverage ratio (a measure of the extent to which respondents reported for each item) is shown in table 3c for the three types of services. It is derived for each item by calculating the ratio of the weighted employment (establishment data multiplied by sample weight, see appendix B) for those ASM establishments that reported the specific inquiry to the weighted total employment for all ASM establishments classified in the industry.

APPENDIX B.
Annual Survey of Manufactures (ASM) Sampling and Estimating Methodologies

DESCRIPTION OF SURVEY SAMPLE

The Annual Survey of Manufactures (ASM) contains two components. The mail portion of the survey is a probability sample of about 56,000 manufacturing establishments selected from a total of about 220,000 establishments. These 220,000 establishments represent all manufacturing establishments of multiunit companies and all single establishment companies mailed schedules in the 1982 Census of Manufactures. This mail portion is supplemented annually by a Social Security Administration list of new manufacturing establishments opened after 1982 and a list of new multiunit manufacturing establishments identified from the Census Bureau's Company Organization Survey.

The 1984 through 1988 ASM sample differs slightly from the previous sample. For the current panel, all establishments of companies with 1982 shipments in manufacturing in excess of $500 million were included in the survey panel with certainty. There are approximately 500 such companies collectively accounting for approximately 18,000 establishments. For the remaining portion of the mail survey, the establishment was defined as the sampling unit. For this portion, all establishments with 250 employees or more and establishments with a very large value of shipments also were included in the survey panel with certainty. A total of 12,100 establishments were selected from this portion of the universe with certainty. Therefore, of the 56,000 manufacturing establishments included in the ASM panel, approximately 31,000 are selected with certainty. These certainty establishments collectively account for approximately 80 percent of the total value of shipments in the 1982 census.

Smaller establishments in the remaining portion of the mail survey were sampled with probabilities ranging from 0.999 to 0.005 in accordance with mathematical theory for optimum allocation of a sample. The probabilities of selection assigned to the smaller establishments were proportional to measures of size determined for each establishment. The measures of size depend directly upon each establishment's 1982 product class values and the historic variability of the year-to-year shipments of each product class. Product classes displaying more volatile year-to-year change in shipments at the establishment level were sampled at a heavier rate.

This method of assigning measures of size was used in order to maximize the precision (that is, minimize the variance of estimates of the year-to-year change) in the value of product class shipments. Implicitly, it also gave weight differences in employment, value added, and other general statistics, since these are highly correlated with value of shipments. Individual sample selection probabilities were obtained by multiplying each establishment's final measure of size by an overall sampling fraction coefficient calculated to yield a total expected sample size.

The sample selection procedure gave each establishment in the sampling frame an independent chance of selection. This method of independent selection permits the rotation of small establishments out of a given sample panel without introducing a bias into the survey estimates.

The nonmail portion of the survey includes all single-establishment companies that were tabulated as administrative records in the 1982 Census of Manufactures. Although this portion contained approximately 130,000 establishments, it accounted for less than 2 percent of the estimate for total value of shipments at the total manufacturing level. This portion was not sampled; rather, the data for every establishment in this group were estimated based on selected information obtained annually from the administrative records of the Internal Revenue Service and the Social Security Administration. This administrative-record information, which includes payroll, total employment, industry classification, and physical location of the establishment, was obtained under conditions which safeguard the confidentiality of both tax and census records. Estimates of data other than payroll and employment for these small establishments were developed from industry averages.

The corresponding estimates for the mail and nonmail establishments were added together, along with the base-year differences, as defined in the Description of Estimating Procedure section, to produce the figures shown in this publication.

DESCRIPTION OF ESTIMATING PROCEDURES

Most of the ASM estimates for the years 1983-1986 were computed using a difference estimation procedure. For each item, a base-year difference was developed. This base-year difference is equal to the difference between the 1982 census published number for an item total and the linear ASM estimate of the total for 1982. The ASM linear estimate was obtained by multiplying each sample establishment's data by its sample weight (the reciprocal of its probability of selection) and summing the weighted values.

These base-year differences were then added to the corresponding current-year linear estimates, which include the sum of the estimates for the mail and nonmail establishments, to produce the estimates for the years 1983-1986. Estimates developed by this procedure usually are far more reliable than comparable linear estimates developed from the current sample data alone.

The 1987 sample estimates for the purchased service items, shown in table 3c, are strictly ASM linear estimates, however, developed only from ASM establishments that reported the specific item.

The remaining estimates in table 3c, showing the breakdown of expenditures for new machinery and equipment and costs of parts (separated into purchases from foreign sources and purchases from domestic sources), were computed as ratio estimates. To do this, linear estimates of the new machinery detail items were developed from the ASM establishments and were ratio adjusted to the corresponding census total for new machinery. In a similar fashion, the ASM linear estimates of the detailed purchased materials items were ratio adjusted to the corresponding census total for cost of parts.

QUALIFICATIONS OF THE DATA

The estimates developed from the sample are apt to differ somewhat from the results of a survey covering all companies in the sampled lists but otherwise conducted under essentially the same conditions as the actual sample survey. The estimates of the magnitude of the sampling errors (the differences between the estimates obtained and the results theoretically obtained from a comparable, complete-coverage survey) are provided by the standard errors of the estimates.

The particular sample selected for the ASM is one of a large number of similar probability samples that, by chance, might have been selected under the same specifications. Each of the possible samples would yield somewhat different sets of results, and the standard errors are measures of the variation of all the possible sample estimates around the theoretical, comparable, complete-coverage values.

Estimates of the standard errors have been computed from the sample data for selected statistics in this report. They are presented in the form of relative standard errors (the standard errors divided by the estimated values to which they refer).

In conjunction with its associated estimate, the relative standard error may be used to define confidence intervals (ranges that would include the comparable, complete-coverage value for specified percentages of all the possible samples).

The complete coverage value would be included in the range:

1. From one standard error below to one standard error above the derived estimate for about two-thirds of all possible samples.
2. From two standard errors below to two standard errors above the derived estimate for about 19 of 20 of all possible samples.
3. From three standard errors below to three standard errors above the derived estimate for nearly all samples.

An inference that the comparable, complete-survey result would be within the indicated ranges would be correct in approximately the relative frequencies shown. Those proportions, therefore, may be interpreted as defining the confidence that the estimates from a particular sample would differ from complete-coverage results by as much as one, two, or three standard errors, respectively.

For example, suppose an estimated total is shown as 50,000 with an associated relative standard error of 2 percent, that is, a standard error of 1,000 (2 percent of 50,000). There is approximately 67 percent confidence that the interval 49,000 to 51,000 includes the complete-coverage total, about 95 percent confidence that the interval 48,000 to 52,000 includes the complete-coverage total and almost certain confidence that the interval 47,000 to 53,000 includes the complete coverage total.

In addition to the sample errors, the estimates are subject to various response and operational errors: errors of collection, reporting, coding, transcription, imputation for nonresponse, etc. These operational errors also would occur if a complete canvass were to be conducted under the same conditions as the survey. Explicit measures of their effects generally are not available. However, it is believed that most of the important operational errors were detected and corrected in the course of the Bureau's review of the data for reasonableness and consistency. The small operational errors usually remain. To some extent, they are compensating in the aggregated totals shown. When important operational errors were detected too late to correct the estimates, the data were suppressed or were specifically qualified in the tables.

As derived, the estimated standard errors included part of the effect of the operational errors. The total errors, which depend upon the joint effect of the sampling and operational errors, are usually of the order of size indicated by the standard error, or only moderately higher. However, for particular estimates, the total error may considerably exceed the standard errors shown.

The concept of complete coverage under the conditions prevailing for the ASM is not identical to the complete coverage of the census of manufactures, as the censuses have been conducted. Nearly all types of operational errors that affect the ASM also occur in the censuses. The ASM and the censuses, are conducted under quite different conditions, and operational errors can be better controlled in the ASM than in the censuses. As a result, for many of the census figures, the errors are of the same order of size as the total errors of the corresponding annual survey estimates. The differences between the census and ASM operating conditions also disturb, to some degree, the comparability of the ASM and census data.

Any figures shown in the tables in this publication having an associated standard error exceeding 15 percent may be of limited reliability. However, the figure may be combined with higher-level totals, creating a broader aggregate, which then may be of acceptable reliability.

APPENDIX C.
Changes in Census of Manufactures Product Classes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982
2011B	2011A 2013A pt
20135	20130
2013B	2013A pt
20150	20160 20170
20151	20161 20171
20152	20162 20172
20153	20163 20173
20154	20164 20174
20155	20165 20175
20159	20179
20226	20220
20239	20239 2099A pt
20267	20266 pt 2099B pt
20268	20266 pt 2099B pt
20324	20324 pt
20343	20341 pt
20380	20380 pt
20384	20381 pt 20383 pt
20415	20383 pt 20415
20440	20440 pt
20450	20383 pt 20450
20470	20470 pt
20480	20470 pt 20480
2048A	20475 20476
20530	20380 pt 20381 pt
20640	20650 pt
20642	20652
20643	20653
20649	20659
20660	20660 20990 pt
20669	20668 20998
20680	20341 pt 20650 pt 20657
20863 20864 20865	20861 pt
20866	20861 pt 20862
20866—Con.	20861 pt—Con. 20995 pt
20910	20324 pt 20910
20925 20926	20924
20961 20962 20963	20992
20980	20981 pt
20997	20341 pt 20440 pt 20982 2099A pt
20999	2099B pt
2099D	20995 pt
2099E 2099F 2099G	2099C 20981 pt
2211B	22111 pt 22112 pt 22113 pt 22114 pt 22115 pt 22116 pt
2211C	22111 pt 22112 pt 22113 pt 22114 pt 22115 pt 22116 pt
2211D	22111 pt 22112 pt 22113 pt 22114 pt 22115 pt 22116 pt
2211E	22111 pt 22112 pt 22113 pt 22114 pt 22115 pt 22116 pt
2211F	22117
2211G	22119
2211H	2211A
2221B	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221C	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221D	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221E	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221F	22211 pt
2221F—Con.	22211 pt—Con. 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221G	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221H	22211 pt 22212 pt 22213 pt 22214 pt 22215 pt 22216 pt 22217 pt
2221J	22218
2221K	22219
2221M	2221A
22510	22510 pt
22514	22512 pt
22518	22517 pt
22520	22510 pt 22520
22525	22512 pt 22523
22526	22517 pt 22524
22585	22920 pt
22589	22589 22920 pt
22730	22710 pt 22720 pt 22790 pt
22731	22710 pt
22732	22720 pt
22733	22790 pt
22815	22833
22822	22822 22830
22991	22910
22994	22940
22995	22930
22996	22992 22993
23219	23219 pt
23221	23220
23222	23215
23229	23219 pt 23229
23250	23270
23251	23271 pt
23252	23283
23259	23279
23259—Con.	23279—Con. 23289 pt
23260	23280
23261	23281
23262	23284
23269	23289 pt
23293	23271 pt 23292
23530	23510 pt 23520
23531	23521
23532	23522
23533	23510 pt
23692	23631
23693	23691
23699	23619 23699
23813	23811 pt 23812 pt
23814	23811 pt 23812 pt
23952	23951 pt
23958	23959
23964	23951 pt
24930	24920 pt 26610
24931	24920 pt
24932	24920 pt
24933	24993
24934	24996
24935	26611
24936	24998
24937	24995
24994	2499A pt
25115	25115 25158
25145	25141 25142
25146	25143
25147	25144
25425 25991 25992 25994	25990
2621B	26612
26560	26540
26561	26541
26562	26542
26563	26545
26570	26510 26544

[Based on revisions to the Standard Industrial Classification (SIC) Manual definitions of some product classes were revised for 1987. Listed below are the revisions to the product classes]

1987	1982
26710	26410 pt
26711	26415
26712	26416
26713	26419
26714	2641A
26720	26410 pt
26721	26411
26722	26413
26723	26414
26724	2641B
26730	26430 pt
26731	26435
26732	26436
26733	26437
26740	26430 pt
26741	26434
26742	26438
26750	26450
26751	26453
26752	26454
26753	26455
26760	26470
26761	26471
26763	26473
26764	26474
26770	26420
26780	26480
26781	26481
26782	26482
26790	26460 pt 26490
26791	26493
26792	26494
26793	26496
26794	26460 pt
26795	26497
27416 27417	27411
27418	27412
27419	27414
2741A 2741B	27415
27590	27510 pt
27591	27511 pt
27592	27512 pt
27593	27513 pt
27594	27514 pt
27595	27515 pt
27596	27516 pt
27597	27511 pt 27512 pt 27513 pt 27514 pt 27515 pt 27516 pt
27598	27519
27599	27531
2759A	27510 pt
27960	27530 27950
27961	27951 35557 pt
27962	27952
27963	27532 27547 27930 27940
28247	28243 28245
28248	28246
28350	2831A
28350—Con. 28351 28352	2831A—Con.
28360	28310
28361	28311
28362	28312
28363	28317
28364	28318 28319
28656	2911C
28691	2911B
28916 28917	28915
2911D	2911D pt
29990	2911D pt 29990
31430	31430 31433 31434 31435
31440	31440 31445 31446 31447 31448
31490	31490 31491 31493 31495 31496 31497

APPENDIX D.
Changes in Census of Manufactures Product Codes for 1987

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
20119 14	20119 14	20119 12 20119 13
2011B 15	2011B 15	2011A 15
2011B 41	2011B 41	2011A 41
2011B 55	2011B 55	2011A 55
2011B 99	2011B 99	2011A 31 2011A 51
20135 13 20135 17	20135 13 20135 17	20130 00
20151 33	20161 33	20161 33
20151 34	20161 34	20161 34
20151 36	20161 36	20161 36
20151 39	20161 39 20171 39	20161 39 20171 39
20151 41	20161 41 20171 41	20161 41 20171 41
20152 21	20162 21 20172 21	20162 21 20172 21
20152 23	20162 23 20172 23	20162 23 20172 23
20153 22	20163 22 20173 22	20163 21 pt 20173 21 pt
20153 24	20163 24 20173 24	20163 23 pt 20173 23 pt
20153 26	20163 26 20173 26	20163 25 pt 20173 25 pt
20153 27	20163 27	20163 21 pt 20163 23 pt 20163 25 pt
	20173 27	20173 21 pt 20173 23 pt 20173 25 pt
20154 14	20164 14 20174 14	20164 14 20174 14
20154 16	20164 16 20174 16	20164 16 20174 16
20155 11	20165 11 20175 11	20165 11 20175 11
20155 13	20165 13 20175 13	20165 13 20175 13
20155 15	20165 15 20175 15	20165 15 20175 15
20155 31	20165 31 20175 31	20165 31 20175 31
20155 32	20165 32 20175 32	20165 32 20175 32
20155 33	20165 33 20175 33	20165 33 20175 33
20155 34	20165 34 20175 34	20165 34 20175 34
20155 39	20165 39 20175 39	20165 39 20175 39
20155 48	20165 48 20175 48	20165 48 20175 48
20159 11	20179 11	20179 11
20159 13	20179 13	20179 13
20159 15	20179 15	20179 15
20159 17	20179 17	20179 17
20159 51	20179 51	20179 51
20159 53	20179 53	20179 53
20159 55	20179 55	20179 55
20159 57	20179 57	20179 57
20226 00	20220 11	20220 00
20235 22	20235 22	20235 28 pt
20235 29	20235 29	20235 21 20235 28 pt
20239 23	20239 23	20239 29 pt
20239 25	2099A 12	2099A 11 pt
20239 28	20239 28	20239 29 pt
20239 32 20239 38	20239 32 20239 38	20239 31 20239 37 20239 39
20240 31	20240 31	20240 98 pt
20240 52 20240 54	20240 52 20240 54	20240 51
20240 99	20240 99	20240 98 pt
20267 11	2099B 11	2099B 11
20267 13	2099B 13	2099B 13
20267 14 20267 16	2099B 14 2099B 16	2099B 19 pt
20267 17	20267 17	20266 17
20267 18	2099B 18	2099B 19 pt
20268 13	2099B 51	2099B 51
20268 15	20268 15	20266 15
20268 19	20268 19	20266 19
20324 97 20324 99	20324 97 20324 99	20324 98
20331 13	20331 13	20331 71
20331 32	20331 32	20331 72
20331 36	20331 36	20331 73
20331 38	20331 38	20331 74
20331 41	20331 41	20331 75
20332 05	20332 05	20332 08 20332 09 20332 92
20332 37	20332 37	20332 96
20336 14	20336 14	20336 13
20336 15 20336 31	20336 15 20336 31	20336 19
2033B 21	2033B 21	2033B 00
20343 13	20341 13	20341 13
20343 15	20341 15	20341 15
20343 18	20341 18	20341 18
20343 21	20341 21	20341 21
20343 23	20341 23	20341 23
20343 29	20341 29	20341 29
20343 31	20341 31	20341 32 20341 33 20341 35
20352 31 20352 34	20352 31 20352 34	20352 33
20354 35	20354 35	20354 31 20354 33 20354 39
20382 26 20382 28	20382 26 20382 28	20382 27
20384 51	20383 51	20383 51
20384 59	20383 59	20383 59
20384 63	20383 63	20381 18
20384 69	20383 69	20383 61 pt
20411 26	20411 26	20411 24 20411 25
20412 19	20412 19	20412 00 20412 17
20415 91 20415 93	20383 65 20383 66	20383 61
20430 21 20430 23	20430 21 20430 23	20430 19
20430 55	20430 55	20430 52 pt
20430 57	20430 57	20430 53 pt
20430 61	20430 61	20430 59 pt
20430 63	20430 63	20430 52 pt 20430 53 pt 20430 59 pt
20450 91 20450 93	20383 67 20383 68	20383 61
20464 72 20464 75	20464 72 20464 70	20464 69
20481 21	20481 21	20481 13 pt
20481 22	20481 22	20481 17 pt
20481 23	20481 23	20481 26 pt
20481 24	20481 24	20481 28 pt
20481 31	20481 31	20481 13 pt
20481 32	20481 32	20481 17 pt
20481 33	20481 33	20481 26 pt
20481 34	20481 34	20481 28 pt
20483 01 20483 02	20483 01 20483 02	20483 00
20485 03 20485 04	20485 03 20485 04	20485 00
20487 05 20487 06	20487 05 20487 06	20487 00
20488 11	20488 11	20488 14
20488 12 20488 13	20488 12 20488 13	20488 15
20488 21	20488 21	20488 18
20488 23	20488 23	20488 17 pt
20488 25	20488 25	20488 19 pt
20488 31	20488 31	20488 17 pt
20488 33	20488 33	20488 19 pt
2048A 01	20475 35	20475 35
2048A 03	20475 52	20475 52
2048A 05	20476 61	20476 61
2048A 07	20476 63	20476 63
2048A 09	20476 65	20476 65
2048A 11	20476 67	20476 67
2048A 13	20476 69	20476 69
20512 39 20512 40 20512 42	20512 39 20512 40 20512 42	20512 38
20530 11	20381 11	20381 11
20530 13	20381 13	20381 13
20530 14	20381 14	20381 14
20530 17	20381 17	20381 17
20530 19	20381 19	20381 19
20642 00	20652 00	20652 00
20643 00	20653 00	20653 00
20649 21	20659 21	20659 21
20649 76	20659 76	20659 76
20669 11	20668 11 20998 11	20668 11 20998 11
20669 21	20668 21 20998 21	20668 21 20998 21
20669 63	20668 63 20998 63	20668 63 20998 63
20669 71	20668 71 20998 71	20669 71 20998 71
20669 75	20668 75 20998 75	20668 75 20998 75
20669 81	20668 81	20668 81
20669 92	20668 92 20998 92	20668 92 20998 92
20669 93	20668 93 20998 93	20668 93 20998 93
20669 95	20668 95 20998 95	20668 95 20998 95
20670 11 20670 14	20670 11 20670 14	20670 12
20680 13	20657 13	20657 13
20680 15	20657 15	20657 15
20680 17	20657 17	20657 17
20680 33	20657 33	20657 33
20680 35	20657 35	20657 35

[Based on revisions to the Standard Industrial Classification (SIC) Manual, definitions of some product codes were revised for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
20680 37	20657 37	20657 37
20680 53	20657 53	20657 53
20680 55	20657 55	20657 55
20680 57	20657 57	20657 57
20680 61	20657 61	20657 61
20740 98	20740 98	20740 00
20750 98	20750 98	20750 00
20760 94 20760 95 20760 96 20760 97 20760 98	20760 94 20760 95 20760 96 20760 97 20760 98	20760 00
20821 01	20821 01	20821 14 20821 19 pt
20821 02	20821 02	20821 15 20821 19 pt
20821 03	20821 03	20821 18 20821 19 pt
20824 99	20824 99	20824 71 20824 81 20824 91
20840 45 20840 46	20840 45 20840 46	20840 43
20851 48	20851 48	20851 41 20851 45 20851 49
20863 10	20863 10	20861 01 pt 20861 03 pt 20861 07 pt 20861 10 pt 20861 11 pt 20861 12 pt 20861 13 pt 20861 14 pt 20861 15 pt 20861 16 pt 20861 17 pt 20861 18 pt 20861 19 pt 20861 20 pt 20861 21 pt 20861 22 pt 20861 23 pt 20861 24 pt 20861 25 20861 26 pt 20861 27 pt 20861 28 pt 20861 29 pt 20861 31 pt 20861 32 pt 20861 33 pt 20861 34 pt 20861 36 pt 20861 37 pt 20861 38 pt 20861 39 pt 20861 42 pt 20861 44 pt 20861 45 pt 20861 47 pt
20863 20	20863 20	20863 01 20863 03 20863 07 20863 10 20863 12 20863 13 20863 14 20863 15 20863 16 20863 17 20863 18 20863 19 20863 20 20863 21 20863 22 20863 23 20863 24 20863 26 20863 27 20863 28 20863 29 20863 31 20863 32 20863 34
20863 20—Con.	20863 20—Con.	20863 01—Con. 20863 36 20863 37 20863 38 20863 39 20863 42 20863 44 20863 45 20863 47
20863 30	20863 30	20861 01 pt 20861 03 pt 20861 07 pt 20861 10 pt 20861 11 pt 20861 12 pt 20861 13 pt 20861 14 pt 20861 15 pt 20861 16 pt 20861 17 pt 20861 18 pt 20861 19 pt 20861 20 pt 20861 21 pt 20861 22 pt 20861 23 pt 20861 24 pt 20861 26 pt 20861 27 pt 20861 28 pt 20861 29 pt 20861 31 pt 20861 32 pt 20861 33 pt 20861 34 pt 20861 36 pt 20861 37 pt 20861 38 pt 20861 39 pt 20861 42 pt 20861 44 pt 20861 45 pt 20861 47 pt
20864 10	20864 10	20861 51 20861 52 20861 53 20861 55 20861 56 20861 57 20861 58 20861 59
20865 01	20865 01	20861 81 pt 20861 83 pt
20865 02	20865 02	20861 81 pt 20861 83 pt
20866 01	20866 01	20862 88 pt 20862 89 pt
20866 02	20866 02	20862 85 20862 86 20862 88 pt 20862 89 pt
20866 03	20866 03	20862 91
20866 04 20866 05	20866 04 20866 05	20861 93
20866 06	20866 06	20861 83 pt
20866 07	20995 85	20995 85
20866 09	20866 09	20860 00
20873 21	20873 21	20873 13 pt 20873 39 pt
20873 23	20873 23	20873 13 pt 20873 39 pt
20873 25	20873 25	20873 13 pt 20873 39 pt
20873 41	20873 41	20873 13 pt 20873 39 pt
20873 43	20873 43	20873 13 pt 20873 39 pt
20873 45	20873 45	20873 13 pt 20873 39 pt
20910 19	20324 11 20910 19	20324 98 pt 20910 19
20922 27 20922 28 20922 31	20922 27 20922 28 20922 31	20922 29
20923 11 20923 13	20923 11 20923 13	20923 21
20923 15 20923 17	20923 15 20923 17	20923 22
20923 19	20923 19	20923 23
20923 31 20923 33	20923 31 20923 33	20923 26
20923 35	20923 35	20923 28 20923 29
20925 21	20925 21	20924 21
20925 22	20925 22	20924 22
20925 23	20925 23	20924 33 pt
20925 24	20925 24	20924 24
20925 25	20925 25	20924 25
20925 26	20925 26	20924 26
20925 31	20925 31	20924 31
20925 32	20925 32	20924 32
20925 33	20925 33	20924 33 pt
20925 34	20925 34	20924 34
20925 35	20925 35	20924 35
20925 36	20925 36	20924 36
20926 11 20926 13 20926 98	20926 11 20926 13 20926 98	20924 98
20951 15	20951 15	20915 18 20951 17
20961 00	20992 13	20992 12
20980 21	20981 21	20981 21
20980 31	20981 31	20981 31
20997 13	2099A 13	2099A 11 pt
20997 21	2099A 21	2099A 21
20997 31	2099A 31	2099A 31
20997 41	2099A 41	2099A 41
20997 61	20341 36	20341 36
20997 71	20440 19	20440 19
20997 81	20982 35	20982 35
20997 85	20982 41	20982 41
20997 98	2099A 36	2099A 98
20999 21	2099B 21	2099B 21
20999 31	2099B 31	2099B 31
20999 35	2099B 35	2099B 98 pt
20999 41	2099B 41	2099B 41
20999 53 20999 55 20999 98	2099B 53 2099B 55 2099B 99	2099B 98
2099D 82	20995 82	20995 82
2099D 83	20995 83	20995 83
2099D 86	20995 86	20995 86
2099E 31	2099E 31	2099C 31
2099E 33	2099E 33	2099C 33
2099E 38	2099E 38	2099C 38
2099E 39	2099E 39	2099C 39
2099F 44	2099F 44	2099C 44
2099F 46	2099F 46	2099C 46
2099G 11	2099G 11	2099C 11
2099G 25	2099G 25	2099C 25
2099G 51	2099G 51	2099C 51
2099G 85	2099G 85	2099C 85
2099G 91	2099G 91	2099C 91
2099G 98	2099G 98	2099C 98
2211B 00	2211B 00	22111 00 pt 22112 00 pt 22113 00 pt 22114 10 pt 22114 50 pt 22115 00 pt 22116 00 pt
2211C 00	2211C 00	22111 00 pt 22112 00 pt 22113 00 pt 22114 10 pt 22114 30 pt 22114 50 pt 22115 00 pt 22116 00 pt
2211D 00	2211D 00	22111 00 pt 22112 00 pt 22113 00 pt 22114 10 pt 22114 30 pt 22114 50 pt 22115 00 pt 22116 00 pt
2211E 00	2211E 00	22111 00 pt 22112 00 pt 22113 00 pt 22114 00 22114 10 pt 22114 30 pt 22114 50 pt 22116 00 pt
2211F 00	2211F 00	22117 00 22117 11 22117 31 22117 51 22117 61
2211G 10 2211G 30	2211G 10 2211G 30	22119 00
2211H 37	2211H 37	2211A 37
2211H 42	2211H 42	2211A 42
2211H 43	2211H 43	2211H 43
2211H 44	2211H 44	2211A 44
2211H 46	2211H 46	2211A 46
2211H 62	2211H 62	2211A 62
2211H 65	2211H 65	2211A 65
2211H 67	2211H 67	2211A 67
2211H 69	2211H 69	2211A 69
2211H 73 2211H 75	2211H 73 2211H 75	2211A 75
2221B 00	2221B 00	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221C 00	2221C 00	22214 00 pt 22215 00 pt 22216 00 pt

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1987 published	1987 collected	1982 published
2221C 00—Con.	2221C 00—Con.	22214 00 pt —Con. 22217 10 pt 22217 30 pt
2221D 00	2221D 00	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221E 00	2221E 00	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221F 00	2221F 00	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221H 10	2221H 10	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221H 20	2221H 20	22211 00 pt 22212 00 pt 22213 00 pt 22214 00 pt 22215 00 pt 22216 00 pt 22217 10 pt 22217 30 pt
2221J 00	2221J 00	22218 00 22218 15 22218 25 22218 35 22218 38 22218 55 22218 58 22218 64 22218 67
2221K 00	2221K 00	22219 15 22219 25
2221M 21	2221M 21	2221A 21 2221A 22
2221M 23	2221M 23	2221M 23 2221M 24
2221M 25	2221M 25	2221A 25 2221A 26
2221M 27	2221M 27	2221A 27 2221A 28
2221M 33	2221M 33	2221A 33 2221A 37
2221M 41	2221M 41	2221A 41 2221A 44
2221M 42	2221M 42	2221A 42 2221A 45
2221M 43	2221M 43	2221A 43 2221A 46
2221M 47	2221M 47	2221A 47 2221A 48
2221M 71	2221M 71	2221A 71 pt 2221A 72 pt
2221M 77	2221M 77	2221A 71 pt 2221A 72 pt
22514 17	22512 17	22512 17
22514 21	22512 21	22512 21
22514 37	22512 37	22512 37
22514 39	22512 39	22512 36 22512 38
22514 45	22512 45	22512 45
22518 14	22517 14	22517 15 pt
22518 17	22517 17	22517 17
22525 11	22523 11	22523 11
22525 15	22512 11	22512 11
22525 17	22523 17	22523 17
22525 21	22523 21	22523 21
22525 27	22523 27	22523 27
22525 31	22523 31	22523 31
22525 51	22523 51	22523 51
22525 57	22523 57	22523 57
22525 61	22523 61	22523 61
22525 81	22523 81	22523 81
22526 25	22524 25	22524 25
22526 42	22517 13 22524 41	22517 15 pt 22524 41
22526 51	22524 51	22524 51
22565 00	22920 00	22920 00
22617 00	22617 00	22617 11 22617 31 22617 51 22617 61
22619 00	22619 00	22619 11 22619 31 22619 51 22619 71
22628 00	22628 00	22628 20 22628 30 22628 50 22628 61
22629 00	22629 00	22629 20 22629 30 22629 50 22629 61
22731 00	22710 00	22710 00
22732 20	22720 20	22720 20
22732 40	22720 40	22720 40
22733 00	22790 00	22790 00
22815 10	22833 10	22831 00
22815 20	22833 20	22833 20
22822 21 22822 31	22822 21 22822 31	22822 00
22823 11	22823 11	22823 27 pt 22823 32 pt 22823 35 pt
22823 13	22823 13	22823 27 pt 22823 32 pt 22823 35 pt
22823 15	22823 15	22823 27 pt 22823 32 pt 22823 35 pt
22840 31	22840 31	22840 15 pt
22840 33	22840 33	22840 28 pt
22840 41	22840 41	22840 15 pt
22840 43	22840 43	22840 28 pt
22840 51	22840 51	22840 15 pt 22840 28 pt
22840 61	22840 61	22840 35
22950 00 22950 98	22950 00 22950 98	22950 00
22991 00	22910 00 pt	22910 00 pt
22991 12 22991 13	22910 12 22910 13	22910 11
22991 15 22991 17	22910 15 22910 17	22910 19
22991 21 22991 23	22910 21 22910 23	22910 00
22991 35	22910 35	22910 36 22910 38
22991 47	22910 47	22910 47
22994 22	22940 22	22940 14 pt 22940 21 pt
22994 31	22940 31	22940 14 pt 22940 21 pt
22994 35	22940 35	22940 14 pt 22940 21 pt
22994 39	22940 39	22940 14 pt 22940 28
22994 41	22940 41	22940 41
22995 17	22930 17	22930 17
22995 19	22930 19	22930 19
22995 32	22930 32	22930 32
22995 33 22995 35	22930 33 22930 35	22930 34
22995 57	22930 57	22930 57
22996 01	22996 01	22992 61
22996 03	22996 03	22992 75
22996 10	22996 10	22993 40
22996 11	22996 11	22993 50
23213 00	23213 00	23212 00 23214 00 pt
23216 00	23216 00	23214 00 pt
23222 00	23215 00	23215 00
23229 11	23229 93	93000 00
23229 12	23219 15	23219 15
23251 00	23271 11	23271 00
23252 00	23283 00	23283 00
23259 11	23279 13	23279 00 pt
23259 12	23289 11	23289 11
23261 00	23281 00	23281 00
23262 00	23284 00	23284 00
23269 00	23289 13	23289 13
23299 11	23279 11	23279 00 pt
23299 13	23299 93	93000 00
23313 00	23313 00	25512 00 23317 00 pt
23314 00	23314 00	23317 00 pt
23413 00	23413 00	23413 30 23413 31
23531 01	23521 15	23521 15
23531 03	23521 41	23521 41
23531 05	23521 83	23521 83
23531 09	23521 91	23521 91
23532 01	23522 12	23522 12
23532 03	23522 15	23522 15
23532 05	23522 17	23522 17
23532 09	23522 98	23522 98
23533 01	23510 12	23510 12
23533 03	23510 41	23510 41
23533 09	23510 93	23510 93
23613 00	23613 00	23611 30 pt 23612 00
23614 00	23614 00	23611 30 pt
23615 00	23615 00	23611 10
23692 00	23631 00	23631 00
23693 40	23691 40	23691 40
23693 70	23693 70	23691 70
23693 80 23693 93	23691 80 23691 93	23691 92
23813 00	23813 00	23811 00 pt 23812 00 pt
23814 00	23814 00	23811 00 pt 23812 00 pt
23910 10	23910 10	23910 11 pt 23910 17 pt 23910 18 pt 23910 51 pt 23910 57 pt 23910 58 pt
23910 12	23910 12	23910 11 pt
23910 19 23910 21	23910 19 23910 21	23910 17
23910 25	23910 25	23910 18 pt
23910 52	23910 52	23910 51 pt
23910 59 23910 61	23910 59 23910 61	23910 57
23910 62	23910 62	23910 58 pt
23921 11	23921 11	23921 12 pt 23921 13 pt 23921 15 pt 23921 17 pt 23921 18 pt 23921 19 pt 23921 27 pt 23921 28 pt 23921 29 pt
23921 14	23921 14	23921 12 pt
23921 16	23921 16	23921 13 pt 23921 15 pt
23921 20	23921 20	23921 17 pt
23921 21	23921 21	23921 18 pt 23921 19 pt
23921 24	23921 24	23921 23 23921 25
23921 30	23921 30	23921 27 pt
23921 31	23921 31	23921 28 pt 23921 29 pt
23923 10 23923 13	23923 10 23923 13	23923 00

[Based on revisions to the Standard Industrial Classification (SIC) **Manual, definitions of some product codes were revised** for 1987. Listed below are the revisions to the product codes. The terms published and collected are defined as follows: (1) published refers to the code used in the published reports for 1987 and 1982, and (2) collected refers to the code appearing on the report forms for 1987]

1987 published	1987 collected	1982 published
23924 12	23924 12	23924 11 pt 23924 13 pt 23924 39 pt
23924 14	23924 14	23924 11 pt 23924 13 pt 23924 39 pt
23924 16	23924 16	23924 11 pt 23924 13 pt 23924 39 pt
23924 33	23924 33	23924 31 pt 23924 39 pt
23924 35	23924 35	23924 31 pt 23924 39
23924 36	23924 36	
23924 37	23924 37	23924 44 pt 23924 45 pt 23924 47 pt 23924 49 pt
23924 38	23924 38	23924 44 pt 23924 45 pt
23924 40	23924 40	23924 47 pt 23924 49 pt
23924 41	23924 41	23924 41 23924 44 pt 23924 45 pt
23924 43	23924 43	23924 47 pt 23924 49 pt
23924 46	23924 46	23924 44 pt 23924 45 pt
23924 48	23924 48	23924 47 pt 23924 49 pt
23924 50	23924 50	23924 42 23924 44 pt 23924 45 pt
23924 51	23924 51	23924 47 pt 23924 49 pt
23924 54	23924 54	23924 49 pt
23924 55	23924 55	23924 53 pt
23924 56	23924 56	23924 52 pt 23924 53 pt
23924 91	23924 91	23924 83 23924 84
23924 92	23924 92	23924 85
23924 93	23924 93	23924 86
23924 95	23924 95	23924 87 23924 88
23924 96	23924 96	23924 89
23930 95 23930 96	23930 95 23930 96	23930 93
23940 61 23940 63 23940 65	23940 61 23940 63 23940 65	23940 98
23952 00	23951 12 23959 11	23951 12 23959 11 pt
23958 11	23959 11	23951 11 pt
23958 33	23959 33	23959 33
23964 34	23951 34	23951 34
23964 37	23951 37	23951 37
23990 97 23990 99	23990 97 23990 99	23990 98
24111 09	24111 09	24111 25 pt
24111 27	24111 27	24111 19 24111 25 pt
24112 23	24112 23	24112 27 pt
24112 28	24112 28	24112 11 24112 15 24112 20 24112 22 24112 27 pt
24113 11 24113 13	24113 11 24113 13	24113 00
24114 08 24114 10	24114 08 24114 10	24114 11
24114 12 24114 14	24114 12 24114 14	24114 13
24114 16	24114 16	24114 17 pt
24114 18	24114 18	24114 19 pt
24114 22	24114 22	24114 17 pt
24114 24	24114 24	24114 19 pt
24114 29 24114 33 24114 35	24114 29 24114 33 24114 35	24114 31
24211 61 24211 63 24211 65	24211 61 24211 63 24211 65	24211 71
24211 75 24211 77	24211 75 24211 77	24211 73
24212 31	24212 31	24212 22 pt 24212 23 pt 24212 25 pt
24212 33	24212 33	24212 22 pt
24212 35	24212 35	24212 23 pt
24212 37	24212 37	24212 25 pt
24215 16	24215 16	24215 77 pt
24215 18	24215 18	24215 78 pt
24215 22	24215 22	24215 77 pt
24215 24	24215 24	24215 78 pt
24261 21 24261 23	24261 21 24261 23	24261 19
24262 24	24262 24	24262 23 24262 25
24262 86	24262 86	24262 89
24266 11 24266 13	24266 11 24266 13	24266 00
24290 61	24290 61	24290 63 24290 73
24290 83	24290 83	24290 81 24290 89
24312 00	24312 00	24312 75
24312 09	24312 09	24312 11 24312 13
24318 73 24318 77	24318 73 24318 77	24318 75
24353 11	24353 11	24353 01 pt 24353 03 pt
24353 31	24353 31	24353 01 pt 24353 03 pt
24353 98	24353 98	24353 01 pt 24353 03 pt
24354 27 24354 31	24354 27 24354 31	24354 29
24363 11	24363 11	24363 01 pt 24363 03 pt
24363 31	24363 31	24363 01 pt 24363 03 pt
24363 98	24363 98	24363 01 pt 24363 03 pt
24367 00	24367 00	24367 01 24367 03
24411 27	24411 27	24411 25 24411 51
24411 63	24411 63	24411 65 24411 83
24522 17 24522 19	24522 17 24522 19	24522 21
24912 01 24912 03 24912 05 24912 07	24912 01 24912 03 24912 05 24912 07	24912 11
24912 09 24912 12 24912 14 24912 16	24912 09 24912 12 24912 14 24912 16	24912 13
24913 01 24913 03	24913 01 24913 03	24913 11
24913 05 24913 07 24913 09 24913 12 24913 14	24913 05 24913 07 24913 09 24913 12 24913 14	24913 13
24919 01 24919 03 24919 05 24919 07 24919 09	24919 01 24919 03 24919 05 24919 07 24919 09	24919 00
24931 03	24921 03	24920 03
24931 05	24921 05	24920 05
24931 07	24921 07	24920 07
24931 09	24921 09	24920 09
24931 12	24921 12	24920 12
24931 14	24921 14	24920 14
24931 16	24921 16	24920 16
24931 18	24921 18	24920 18
24931 19	24921 19	24920 19
24932 00	24922 00	24920 00
24933 14	24993 14	24993 14
24933 15	24993 15	24993 15
24933 18	24993 18	24993 16 24993 17
24934 00	24996 00	24996 00 24996 12 24996 13 24996 15 24996 16 24996 17 24996 18 24996 19
24935 00	26611 00	26611 00
24936 14	24998 14	24998 14
24936 15	24998 15	24998 15
24936 16	24998 16	24998 16
24936 17	24998 17	24998 17
24937 21	24995 21	24995 21
24937 31	24995 31	24995 31
24992 00	24992 00	24992 00 24992 21 24992 97
24994 11	2499A 11	2499A 11
24994 14	2499A 14	2499A 13 pt
24994 14—Con. 24994 16	2499A 14—Con. 2499A 16	2499A 13 pt—Con. 2499A 15 pt
24994 17	2499A 17	2499A 17
24994 19	2499A 19	2499A 19
24994 23	2499A 23	2499A 23
24994 25	2499A 25	2499A 25
24994 41	2499A 41	2499A 41
24994 51	2499A 51	2499A 51
24994 54	2499A 54	2499A 53 2499A 55
24994 57	2499A 57	2499A 57
24994 58	2499A 58	2499A 59 2499A 60
24994 61	2499A 61	2499A 61
24994 62	2499A 62	2499A 62
24994 71	2499A 71	2499A 71
24994 75	2499A 75	2499A 75
24994 79	2499A 79	2499A 79
24994 85	2499A 85	2499A 85
24994 89	2499A 89	2499A 89
24994 91	2499A 91	2499A 91
24994 97	2499A 97	2499A 97
24994 99	2499A 99	2499A 13 pt 2499A 15 pt 2499A 63 2499A 64 2499A 98
25112 91 25112 98	25112 91 25112 98	25112 99
25113 33 25113 35	25113 33 25113 35	25113 31
25113 91 25113 99	25113 91 25113 99	25113 98
25115 17	25158 00	25158 00
25115 91 25115 99	25115 91 25115 99	25115 98
25116 21 25116 31 25116 98	25116 21 25116 31 25116 98	25116 99
25117 43 25117 45 25117 47 25117 49	25117 43 25117 45 25117 47 25117 49	25117 48
25117 63 25117 65 25117 67 25117 69	25117 63 25117 65 25117 67 25117 69	25117 61
25120 31 25120 35	25120 31 25120 35	25120 32
25145 12 25145 13	25145 12 25145 13	25141 11
25145 15	25145 15	25141 15
25145 17	25145 17	25141 17
25145 19	25145 19	25141 98 pt
25145 21	25145 21	25142 11
25145 27	25145 27	25142 51
25145 98	25145 98	25141 98 pt 25142 71

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1987 published	1987 collected	1982 published
25146 12	25146 12	25143 12
25146 14	25146 14	25143 14
25146 22	25146 22	25143 22
25146 24	25146 24	25143 24
25146 98	25146 98	25143 98
25147 33	25147 33	25144 33
25147 37	25147 37	25144 37
25147 55	25147 55	25144 55
25147 71	25147 71	25144 71
25147 75	25147 75	25144 75
25147 82	25147 82	25144 92
25147 83	25147 83	25144 93
25147 85 25147 87	25147 85 25147 87	25144 94
25147 91	25147 91	25144 97 pt
25147 99	25147 99	25144 91 25144 97 pt
25152 65	25152 65	25152 67 25152 69
25190 23 25190 25	25190 23 25190 25	25190 41
25190 33 25190 35	25190 33 25190 35	25190 32
25312 13 25312 15	25312 13 25312 15	25312 11
25312 33 25312 35	25312 33 25312 35	25312 31
25312 43 25312 45 25312 47	25312 43 25312 45 25312 47	25312 41
25425 00	25993 13	25990 97 pt
25991 00	25991 00	25990 21
25992 31 25992 33	25992 31 25992 33	25990 41
25992 35 25992 37	25992 35 25992 37	25990 45
25992 47	25992 47	25990 47
25992 48	25992 48	25990 48
25994 51	25993 51	25990 51
25994 97	25993 97	25990 97 pt
26218 00	26612 00	26612 00
26530 14 26530 30	26530 14 26530 30	26530 29
26561 00	26541 00	26541 00
26562 33	26542 33	26542 33
26562 35	26542 35	26542 35
26563 10	26545 10	26545 10
26563 12	26545 12	26545 12
26563 14	26545 14	26545 14
26563 16	26545 16	26545 16
26570 14	26510 14	26510 14
26570 15	26510 15	26510 97 pt
26570 21	26510 21	26510 21
26570 31	26510 31	26510 31
26570 41	26510 41	26510 41
26570 51	26510 51	26510 51
26570 61	26510 61	26510 61
26570 71	26510 71	26510 71
26570 81	26510 81	26510 81
26570 84	26544 84	26544 10 pt
26570 86	26544 86	26544 12
26570 88	26544 88	26544 14
26570 90	26544 90	26544 10 pt 26544 16
26570 95	26510 95	26510 95
26570 96 26570 99	26510 96 26510 99	26510 97 pt
26711 00 26711 11 26711 15	26415 00 26415 11 26415 15	26415 00
26712 11	26416 11	26416 11
26712 12	26416 12	26416 12
26713 13 26713 14	26419 13 26419 14	26419 11
26713 18 26713 21	26419 18 26419 21	26419 12
26714 11	2641A 11	2641A 11
26714 12	2641A 12	2641A 12
26714 13	2641A 13	2641A 13
26714 14	2641A 14	2641A 14
26714 15	2641A 15	2641A 15
26714 16	2641A 16	2641A 16
26721 13	26411 13	26411 13
26721 53	26411 53	26411 53
26722 00	26413 00	26413 00
26723 00	26414 00	26414 00
26724 45	2641B 45	2641B 45
26724 51	2641B 51	2641B 51
26724 53	2641B 53	2641B 53
26724 55 26724 56	2641B 55 2641B 56	2641B 98 pt
26724 59	2641B 59	2641B 11 2641B 21 2641B 98 pt
26731 00	26435 00	26435 00
26732 11	26436 11	26436 11
26732 12	26436 12	26436 12
26732 13	26436 13	26436 13
26732 14	26436 14	26436 14
26732 15	26436 15	26436 15
26732 16	26436 16	26436 16
26732 17	26436 17	26436 17
26732 18	26436 18	26436 18
26732 21	26436 21	26436 21
26732 23	26436 23	26436 23
26733 11 26733 12 26733 14	26437 11 26437 12 26437 14	26437 00
26741 11	26434 11	26434 11
26741 12	26434 12	26434 12
26741 13	26434 13	26434 13
26741 15	26434 15	26434 15
26742 11	26438 11	26438 11
26742 12	26438 12	26438 12
26751 00	26453 00	26453 00
26752 61	26454 61	26454 61
26752 71	26454 71	26454 71
26752 97	26454 97	26454 97
26753 00	26455 00	26455 00
26761 14	26471 14	26471 14
26761 51	26471 51	26471 51
26763 00	26473 00	26473 00
26763 88	26473 88	26473 88
26764 11	26474 11	26474 11
26764 25	26474 25	26474 25
26764 27	26474 27	26474 27
26764 33	26474 33	26474 33
26764 35	26474 35	26474 35
26764 37	26474 37	26474 37
26764 41	26474 41	26474 41
26764 43	26474 43	26474 43
26764 45	26474 45	26474 45
26764 47	26474 47	26474 47
26764 55	26474 55	26474 55
26764 71	26474 71	26474 71
26764 76	26474 76	26474 76
26764 77	26474 77	26474 77
26764 81	26474 81	26474 81
26764 99	26474 99	26474 85 26474 98
26770 00	26420 00	26420 00
26781 00	26481 00	26481 00
26782 00	26482 00	26482 00
26791 21	26493 21	26493 21
26791 23	26493 23	26493 23
26791 26 26791 28	26493 26 26493 28	26493 25
26791 32 26791 33 26791 35	26493 32 26493 33 26493 35	26493 31
26791 41	26493 41	26493 41
26792 82	26494 82	26494 82
26792 91	26494 91	26494 91
26792 96	26494 96	26494 96
26793 00	26496 00	26496 00
26794 00	26460 00	26460 11 26460 19
26795 11	26497 11	26497 11
26795 22 26795 23	26497 22 26497 23	26497 21
26795 31	26497 31	26497 31
26795 35	26497 35	26497 35
26795 41	26497 41	26497 41
26795 45	26497 45	26497 45
26795 48	26497 48	26497 48
26795 51	26497 51	26497 51
26795 55	26497 55	26497 55
26795 61	26497 61	26497 61
26795 69	26497 69	26497 69
27213 24	27213 24	27213 21 pt
27213 28 27213 30	27213 28 27213 30	27213 29 pt
27213 32	27213 32	27213 21 pt 27213 23 27213 29 pt
27213 34	27213 34	27213 31 pt
27213 38 27213 40	27213 38 27213 40	27213 39 pt
27213 42	27213 42	27213 31 pt 27213 33 27213 39 pt
27213 44	27213 44	27213 41 pt 27213 45 pt
27213 46	27213 46	27213 41 pt 27213 45 pt
27214 24	27214 24	27214 21 pt
27214 28 27214 30	27214 28 27214 30	27214 29 pt
27214 32	27214 32	27214 21 pt 27214 23 27214 29 pt
27214 34	27214 34	27214 31 pt
27214 38 27214 40	27214 38 27214 40	27214 39 pt
27214 42	27214 42	27214 31 pt 27214 33 27214 39 pt
27214 44	27214 44	27214 41 pt 27214 45 pt
27214 46	27214 46	27214 41 pt 27214 45 pt
2721A 70	2721A 70	2721A 30 pt 2721A 40 pt
2721A 80	2721A 80	2721A 30 pt
2721A 90	2721A 90	2721A 40 pt
2721B 70	2721B 70	2721B 30 pt 2721B 40 pt
2721B 80	2721B 80	2721B 30 pt
2721B 90	2721B 90	2721B 40 pt
2721C 70	2721C 70	2721C 30 pt 2721C 40 pt

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1987 published	1987 collected	1982 published
2721C 80	2721C 80	2721C 30 pt
2721C 90	2721C 90	2721C 40 pt
2731E 57	2731E 57	2731E 43 2731E 55
27416 00	27416 00	27411 13
27417 13	27417 13	27411 15
27417 15 27417 17	27417 15 27417 17	27411 21
27418 13	27418 13	27412 13
27418 15	27418 15	27412 15
27419 00	27419 00	27414 00
2741A 00	2741A 00	27415 21
2741B 13	2741B 13	27415 11
2741B 14	2741B 14	27415 31
2741B 15	2741B 15	27415 41
2741B 17	2741B 17	27415 61
2741B 19	2741B 19	27415 65
2741B 21	2741B 21	27415 95
2741B 23	2741B 23	27415 97
2741B 25 2741B 27	2741B 25 2741B 27	27415 99 pt
2741B 91	2741B 91	27415 51 27415 99 pt
27522 15	27522 15	27522 11 pt 27522 13 pt
27522 16	27522 16	27522 23 pt
27522 18	27522 18	27522 17 pt
27522 19	27522 19	27522 00
27522 20	27522 20	27522 11 pt 27522 13 pt 27522 17 pt 27522 23 pt
27523 13	27523 13	27523 21 27523 22
27525 23	27525 23	27525 22 27525 24
27525 33	27525 33	27525 34 27525 36
27526 11	27526 11	27526 12 27526 14
27542 11	27542 11	27542 21 pt
27542 13	27542 13	27542 24 pt
27542 15	27542 15	27542 27 pt
27542 17	27542 17	27542 21 pt 27542 24 pt 27542 27 pt
27590 00	27510 00 pt	27510 00 pt
27591 12	2751A 12	27511 15
27591 14	2751A 14	27511 17
27592 11	2751B 11	27512 11 pt
27592 13	2751B 13	27512 15 pt
27592 15	2751B 15	27512 23 pt
27592 17	2751B 17	27512 16 pt
27592 19	2751B 19	27512 18 pt
27592 21	2751B 21	27512 11 pt 27512 15 pt 27512 16 pt 27512 18 pt 27512 23 pt
27592 23	2751B 23	27512 33 pt
27592 27	2751B 27	27512 41 pt 27512 43 pt
27593 12	2751C 12	27513 11
27593 18	2751C 18	27513 17 27513 19
27594 11	2751D 11	27514 11
27594 13	2751D 13	27514 13
27594 15	2751D 15	27514 19
27594 17	2751D 17	27514 25
27594 19	2751D 19	27514 27
27595 12	2751E 12	27515 11
27595 14	2751E 14	27515 23
27595 16	2751E 16	27515 25
27595 18	2751E 18	27515 31
27595 20	2751E 20	27515 33
27595 22	2751E 22	27515 41
27595 24	2751E 24	27515 98
27596 11	2751F 11	27516 13
27596 13	2751F 13	27516 41
27596 15	2751F 15	27516 51
27596 17	2751F 17	27516 71
27596 19	2751F 19	27516 75
27596 21	2751F 21	27516 45
27596 23	2751F 23	27516 93
27596 25	2751F 25	27516 95
27597 12	2751G 12	27511 00
27597 14	2751G 14	27512 13 pt
27597 16	2751G 16	27512 17 pt
27597 18 27597 20	2751G 18 2751G 20	27512 19 pt
27597 22	2751G 22	27512 13 pt 27512 17 pt 27512 19 pt
27597 24	2751G 24	27512 31
27597 26	2751G 26	27512 33 pt
27597 28	2751G 28	27512 41 pt
27597 30	2751G 30	27512 43 pt
27597 32	2751G 32	27514 00
27597 34	2751G 34	27515 00
27597 36 27597 38	2751G 36 2751G 38	27516 00
27598 11 27598 13	2751H 11 2751H 13	27519 17 pt
27598 15 27598 17	2751H 15 2751H 17	27519 15 27519 17 pt
27598 19	2751H 19	27519 23
27598 21	2751H 21	27519 25
27598 23	2751H 23	27519 29
27598 25	2751H 25	27519 11
27598 27	2751H 27	27519 81
27598 29	2751H 29	27519 85
27598 31	2751H 31	27519 98
27599 12	27531 12	27531 12
27599 22	27531 22	27531 22
27599 32	27531 32	27531 32
2759A 00	2751J 00	27510 00 pt
27823 00	27823 00	27823 00 27823 43 27823 45
27892 81 27892 92	27892 81 27892 92	27892 91
27910 16 27910 18	27910 16 27910 18	27910 12 27910 14
27961 13	27951 13	27951 13 35557 77 pt
27961 15	27951 15	27951 15 35557 77 pt
27961 17	27951 17	27951 17 35557 77 pt
27961 23	27951 23	27951 23 35557 77 pt
27961 29	27951 29	27951 29 35557 77 pt
27962 31	27952 31	27952 31
27962 39	27952 39	27952 39
27962 41	27952 41	27952 41
27963 15	27532 15	27532 15
27963 25	27532 25	27532 25
27963 35	27532 35	27532 35
27963 40	27532 55	27532 55
27963 45 27963 47	27532 45 27532 47	27532 65 pt
27963 53	27547 00	27547 00
27963 61	27930 15	27930 15
27963 63	27930 17	27930 17
27963 65	27930 21	27930 13 27930 19
27963 67	27940 00	27940 00
27963 71	27532 71	27532 65 pt
27963 72 27963 73	27532 72 27532 73	27532 75
28161 11 28161 21	28161 11 28161 21	28161 00
28162 30 28162 40 28162 50 28162 60	28162 30 28162 40 28162 50 28162 60	28162 98
28230 34	28230 34	28230 33 pt 28230 37 pt
28230 38	28230 38	28230 33 pt 28230 37 pt
28230 39	28230 39	28230 33 pt 28230 37 pt
28241 13	28241 13	28241 14 pt 28241 16 pt
28241 19 28241 21	28241 19 28241 21	28241 14 pt
28241 23	28241 23	28241 16 pt
28241 25	28241 25	28241 14 pt 28241 16 pt
28244 32	28244 32	28244 31 pt 28244 33 pt
28244 34 28244 36	28244 34 28244 36	28244 31 pt
28244 38	28244 38	28244 33 pt
28244 41	28244 41	28244 31 pt 28244 33 pt
28244 43	28244 43	28244 35
28244 45	28244 45	28244 37
28244 47	28244 47	28244 39
28247 13	28247 13	28243 31 pt 28245 61 pt 28245 73 pt
28247 15	28247 15	28243 31 pt 28245 61 pt 28245 73 pt
28247 16	28247 16	28243 31 pt 28245 63 pt 28245 72 pt
28247 19	28247 19	28243 31 pt 28245 61 pt 28245 63 pt 28245 72 pt 28245 73 pt
28247 31	28247 31	28243 33 pt
28247 33	28247 33	28243 33 pt 28245 66 28245 74
28247 41	28247 41	28243 39 28245 69 28245 79
28248 15	28248 15	28246 15
28248 51	28248 51	28246 51
28248 81	28248 81	28246 31 28246 62 28246 71
28333 24 28333 26	28333 24 28333 26	28333 25
28351 10	2831A 21	2831A 21
28351 15	2831A 22	2831A 22
28351 20	2831A 24	2831A 24
28351 25	2831A 25	2831A 25
28351 30	2831A 26	2831A 26
28351 35	2831A 41	2831A 27 2831A 28
28351 40 28351 45	2831A 42 2831A 30	2831A 29
28352 10	2831A 31	2831A 31
28352 15	2831A 51	2831A 32 2831A 33
28352 20	2831A 61	2831A 35 2831A 36 2831A 37
28352 25	2831A 39	2831A 39

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1987 published	1987 collected	1982 published
28361 15	28311 15	28311 15
28361 20	28311 20	28311 13 28311 17 28311 19
28362 10 28362 20	28312 10 28312 20	28312 00
28363 10	28313 10	28317 15
28363 20	28313 20	28317 25
28364 10 28364 15	28314 10 28314 15	28318 14
28364 20 28364 25	28314 20 28314 25	28318 16
28364 30	28314 30	28319 00
28411 43	28411 43	28411 42 28411 44
28411 62	28411 62	28411 61 28411 63
28412 18	28412 18	28412 05 28412 19
28413 97	28413 97	28413 51 28413 61 28413 95
28423 53 28423 95	28423 53 28423 95	28423 99
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28511 00	28511 00	28511 11 28511 21 28511 22 28511 24 28511 25 28511 35 28511 37 28511 38 28511 43 28511 45 28511 47 28511 49 28511 53 28511 57 28511 59 28511 63 28511 65 28511 69 28511 71 28511 73 28511 75 28511 77 28511 81 28511 83
28511 00—Con.	28511 00—Con.	28511 11—Con. 28511 85 28511 89 28511 93
28512 00	28512 00	28512 21 28512 23 28512 25 28512 27 28512 31 28512 33 28512 35 28512 37 28512 39 28512 41 28512 43 28512 45 28512 47 28512 49 28512 51 28512 53 28512 55 28512 58 28512 59 28512 61 28512 65
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28916 10	28916 10	28915 56 pt
28916 20	28916 20	28915 61 pt
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31430 00	31430 00	31430 00 31434 00 31435 00
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31610 01	31610 01	31610 16 pt 31610 18 pt 31610 35 pt 31610 37 pt 31610 39 pt
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31610 07	31610 07	31610 24 31610 32
31610 09	31610 09	31610 16 pt 31610 18 pt 31610 35 pt 31610 37 pt 31610 39 pt

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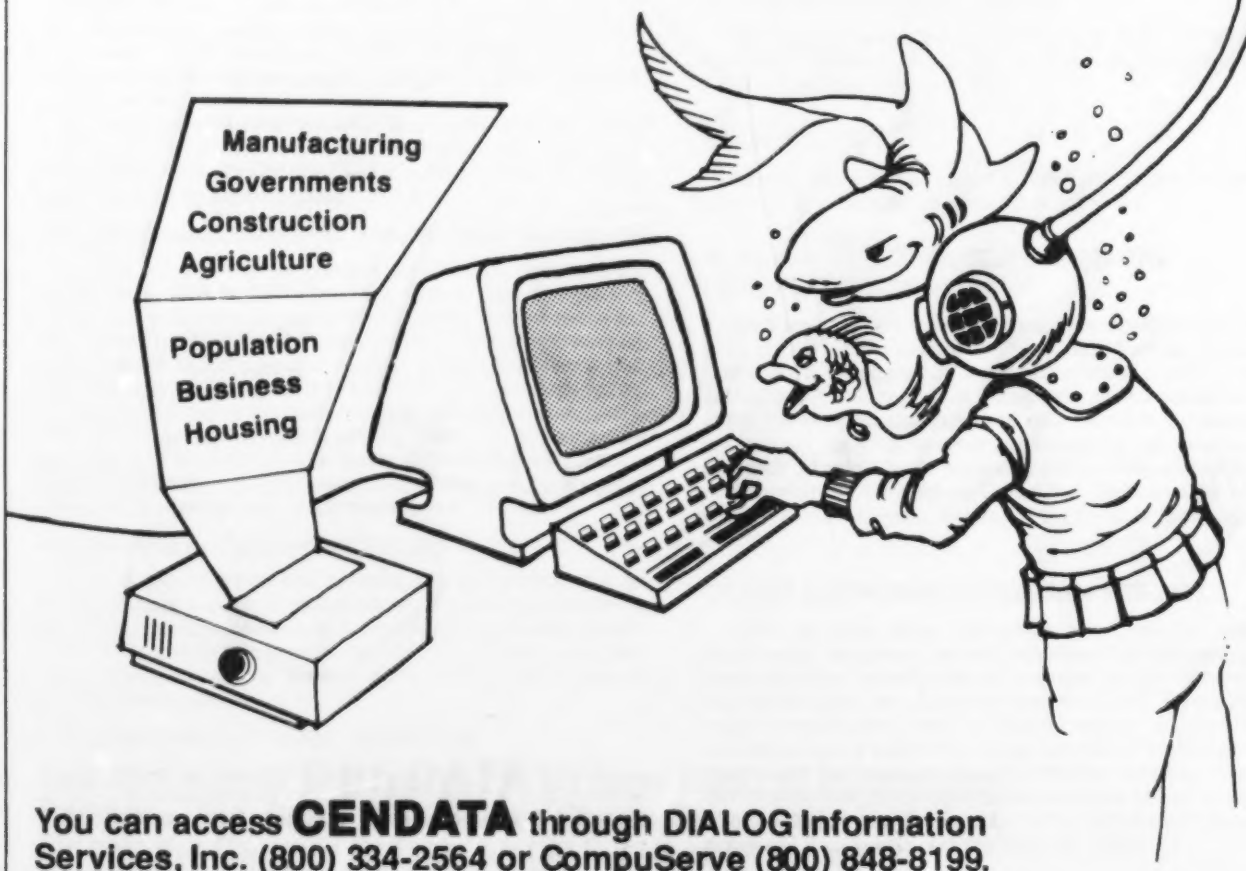

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PUBLICATION PROGRAM

1987 CENSUS OF MANUFACTURES

Publications of the 1987 Census of Manufactures, containing preliminary and final data on manufacturing establishments in the United States, are described below. Publications order forms for the specific reports may be obtained from any Department of Commerce district office or from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.

Preliminary Reports

Industry series—83 reports (MC87-I-20A(P) to -39D(P))

Preliminary industry data are issued in 83 separate reports covering 459 industries. Preliminary summary data for the U.S. and States are released in one report.

Final Reports

Industry series—83 reports (MC87-1-20A to -39D)

Each of the 83 reports provides information for a group of related industries ("dairy products" includes industries for butter, cheese, milk, etc.). Final figures for the United States are shown for each of the 459 manufacturing industries on quantity and value of products shipped and materials consumed, cost of fuels and electric energy, capital expenditures, assets, rents, inventories, employment, payroll, payroll supplements, hours worked, value added by manufacture, number of establishments, and number of companies. Comparative statistics for earlier years are provided where available.

For each industry, data on value of shipments, value added buy manufacture, capital expenditures, employment, and payroll are shown by employment-size class of establishment, State, and degree of primary product specialization.

Geographic area series—51 reports (MC87-A-1 to -51)

A separate report is being published for each State and the District of Columbia. Each report presents data for industry groups and industries on value of shipments, cost of materials, value added by manufacture, employment, payroll, hours worked, new capital expenditures, and number of manufacturing establishments for the State, MSA's, counties, and selected places. Comparative statistics for earlier census years are shown for the State and large MSA's. Manufacturing totals are presented for each county and for places with significant manufacturing activity. Detailed statistics (including inventories, assets, rents, and energy costs) are presented only in statewide totals.

Subject series—7 reports (MC87-S-1 to -7)

Each of the seven reports contains detailed statistics for an individual subject, such as concentration ratios in manufacturing, type of organization, water use in manufacturing, textile machinery in place, distribution of sales by class of customer, manufacturers' shipments to the Federal Government, and a general national-level summary.

Reference series—1 report (MC87-R-1)

The Numerical List of Manufactured and Mineral Products includes a description of the principal products and services published in the 1987 Censuses of Manufactures and Mineral Industries.

Location of Manufacturing Plants—1 report (MC87-LM)

This report includes data for number of establishments by four-digit SIC industry and by employment-size class for counties, incorporated places of 2,500 inhabitants or more, and zip codes for each State. (This report is available only on magnetic tape and CD-ROM.)

Analytical Reports—3 reports (AR87-1 to -3)

Exports From Manufacturing Establishments (AR87-1)

This report presents data on exports by two- and three-digit SIC industry groups for the United States and States. Information is presented on value of direct report shipments and estimates of the employment required to manufacture these products. Included are estimates of employment in manufacturing and nonmanufacturing establishments that supply parts, materials, and services for production of manufactured exports.

Selected Characteristics of Manufacturing Establishments That Export (AR87-2)

This report presents data on the number of manufacturing companies and establishments that export by major group, State, employment size, and ratios of exports to shipments.

Indexes of Production (AR87-3)

The indexes presented in this report are designed to measure the change in physical output of each manufacturing and mineral industry between 1982 and 1987.

MICROFICHE

Every final published report in the 1987 Census of Manufactures will be available on microfiche.

PUBLIC-USE COMPUTER TAPES AND COMPACT DISCS

Data from the final industry series, geographic area series, and the Location of Manufacturing Plants report will be available on public-use computer tapes and compact discs-read only memory (CD-ROM). These tapes will provide the same information found in the final reports. Computerized data products are available for users who wish to summarize, rearrange, or process large amounts of data. These products, with corresponding technical documentation, are sold by Data User Services Division, Customer Services (Tapes), Bureau of the Census, Washington, DC 20233.

OTHER ECONOMIC CENSUSES REPORTS

Data on retail trade, wholesale trade, service industries, construction industries, mineral industries, transportation, enterprise statistics, minority-owned businesses, and women-owned businesses also are available from the 1987 Economic Censuses. A separate series of reports covers the censuses of outlying areas—Puerto Rico, Virgin Islands of the United States, Guam, and the Northern Mariana Islands. Separate announcements describing these reports are available free of charge from Data User Services Division, Customer Services (Publications), Bureau of the Census, Washington, DC 20233.